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WATER POLLUTION CONTROL RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROJECTS. 1969 GRANT AND CONTRACT AWARDS

Federal Water Quality Administration
Washington, D. C.

1969

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1969 GRANT AND CONTRACT AWARDS

RESEARCH GRANTS
RESEARCH CONTRACTS
DEMONSTRATION GRANTS
STORM AND COMBINED SEWER GRANTS
STORM AND COMBINED SEWER CONTRACTS
ADVANCED WASTE TREATMENT GRANTS
ADVANCED WASTE TREATMENT CONTRACTS
INDUSTRIAL WASTE TREATMENT GRANTS
INDUSTRIAL WASTE TREATMENT CONTRACTS

CLEAN WATER

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U.S. DEPARTMENT OF THE INTERIOR
Federal Water Quality Administration
Office of Research and Development
Washington, D.C. 20242

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WATER POLLUTION CONTROL

RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROJECTS

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U. S. DEPARTMENT OF THE INTERIOR
FEDERAL WATER QUALITY ADMINISTRATION
OFFICE OF RESEARCH AND DEVELOPMENT
WASHINGTON, D. C. 20242

I

FORWARD

Section 5 and 6 of the Federal Water Pollution Control Act, Public Law 660, as amended, authorizes the award of grants and contracts for research, development and demonstration projects. Five types of projects are available.

Research Grants and Contracts are awarded to public or private agencies, institutions, and to individuals to assist in supporting basic and applied research projects relating to the causes, control, and prevention of water pollution. They support projects directed toward the discovery and development of new information and technology in the chemical, physical, biological, and social sciences, in engineering, and in administrative aspects related to:

1. Identification of pollutants
2. Fate and persistence of pollutants
3. Effects of pollutants on water uses
4. Treatment processes
5. Non-treatment methods of pollution control
6. Ultimate disposal of pollutants

Demonstration Grants are awarded to public or private agencies, institutions, and to individuals to assist in investigations and studies of an applied nature and to develop and demonstrate the feasibility of new methods related to the causes, control, and prevention of water pollution. They are designed to evaluate the application of research findings, and to expedite incorporation of new knowledge into routine pollution control practice.

Storm and Combined Sewer Grants are awarded to states and interstate agencies, municipalities and intermunicipal agencies whereas Storm and Combined Sewer Contracts are awarded to public or private agencies, institutions, and to individuals. Both grants and contracts are designed to assist projects which will develop and/or will demonstrate a new or improved method of controlling the discharge into any waters of untreated or inadequately treated sewage or other wastes from sewers which carry storm water or both storm water and sewage or other wastes.

Advanced Waste Treatment Grants are awarded to states and interstate agencies, municipalities, and intermunicipal agencies whereas Advanced Waste Treatment Contracts are awarded to public and private agencies, institutions, and to individuals. These projects are designed to assist in the development and/or demonstration of advanced waste treatment and water purification methods (including the temporary use of new or improved chemical additives which provide substantial immediate improvement in existing treatment processes), or new or improved methods of joint treatment systems for municipal and industrial wastes.

Industrial Waste Treatment Grants and Contracts are awarded to public and private agencies. institutions and to individuals to support research and demonstration projects for the prevention of pollution of waters by industry, including, but not limited to, treatment of industrial wastes.

To obtain details concerning the above awards and to request forms for the submission of applications, write to:

Project Coordination
Office of Research and Development
U. S. Department of the Interior
Federal Water Quality Administration
Washington, D. C. 20242

DISCRIMINATION PROHIBITED:

Title VI of the Civil Rights Act of 1964 states:

"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving Federal financial assistance." Therefore, the Office of Research and Development of the Federal Water Quality Administration, like every program or activity receiving financial assistance from the Department of the Interior, will be operated in compliance with this law.

WATER POLLUTION CONTROL

RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROJECTS

1969 GRANT AND CONTRACT AWARDS

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WATER POLLUTION CONTROL

RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROJECTS

SUMMARY OF AWARDS

FISCAL YEAR 1969

Conventional Budget Elements	Projects Awarded	Amount Awarded
Research Grants	211	$6.497,046.00
Research Contracts	71	3,907.446.50
Demonstration Grants	45	2,352,959.00
Storm & Combined Sewer Grants (6A1)	8	3,382,274.00
Storm & Combined Sewer Contracts (6A1)	23	2,357,469.00
Advanced Waste Treatment Grants (6A2)	26	7,676,399.75
Advanced Waste Treatment Contracts (6A2)	17	3,997,414.00
Industrial Waste Treatment Grants (6B)	55	12,011,114.70
Industrial Waste Treatment Contracts (6B)	23	2,048,156.93
ALL PROJECTS	479	$45,230,279.88

RESEARCH, DEVELOPMENT AND DEMONSTRATION PROGRAM STRUCTURE

Office of R & D
FWQA
April 15, 1970

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WATER POLLUTION CONTROL

RESEARCH, DEVELOPMENT, AND DEMONSTRATION PROJECTS

FISCAL YEAR 1969

Program Elements	Section 5 Research	Section 5 Demonstration	Section 6A1	Section 6A2	Section 6B	Total FY 1969 Awards Amount	No.	Active Projects in 1969
MUNICIPAL-POLLUTION CONTROL TECHNOLOGY								
11010 - Grants				$2,913,170.00		$2,913,170.00	8	18
Contracts				637,838.00		637,838.00	2	2
						$3,551,008.00	10	20
11020 - Grants	$37,000.00	$21,569.00	$2,132,965.00			$2,191,528.00	6	22
Contracts			1,645,276.00			1,645,276.00	15	23
						$3,836,804.00	21	45
11022 - Grants			532,033.00			$532,033.00	2	2
Contracts			89,780.00			89,780.00	1	2
						$621,813.00	3	4
11023 - Grants						$		
Contracts			74,646.00			74,646.00	1	3
						$74,646.00	1	3
11024 - Grants	$2,905.00					$52,905.00	4	6
Contracts			513,650.00			513,650.00	1	1
						$566,555.00	5	7
11030 - Grants			285,000.00			$285,000.00	1	1
Contracts			25,555.00			25,555.00	4	4
						$310,555.00	5	5
11032 - Grants			432,276.00			$432,276.00	1	1
Contracts								
						$432,276.00	1	1

Program Elements	Section 5 Research	Section 5 Demonstration	Section 6A1	Section 6A2	Section 6B	Total FY 1969 Awards Amount	Total FY 1969 Awards No.	Active Projects in 1969
11040 - Grants	$18,986.00					$18,986.00	1	1
Contracts			$8,562.00			8,562.00	1	1
						$27,548.00	2	2
11050 - Grants		$99,141.00				$99,141.00	1	1
Contracts								
						$99,141.00	1	1
11060 - Grants				$1,523,518.00	$770,556.00	$2,294,074.75	7	16
Contracts								
						$2,294,074.75	7	16
INDUSTRIAL-POLLUTION CONTROL TECHNOLOGY								
12010 - Grants	49,420.00				1,275,822.00	$1,325,242.00	12	15
Contracts								
						$1,325,242.00	12	15
12020 - Grants					1,744,471.00	$1,744,471.00	8	8
Contracts					71,231.93	71,231.93	2	2
						$1,815,702.93	10	10
12040 - Grants	130,028.00				2,342,976.70	$2,473,004.70	9	18
Contracts								
						$2,473,004.70	9	18
12050 - Grants	87,158.00				388,005.00	$475,163.00	5	6
Contracts					11,190.00	11,190.00	1	1
						$486,353.00	6	7
12060 - Grants	64,984.00		11,920.00		1,865,069.00	$1,941,973.00	11	27
Contracts								
						$1,941,973.00	11	27
12070 - Grants								1
Contracts								
								28

Program Elements	Section 5 Research	Section 5 Demonstration	Section 6A1	Section 6A2	Section 6B	Total FY 1969 Awards Amount	Total FY 1969 Awards No.	Active Projects in 1969
12080 - Grants								1
Contracts								
								1
12090 - Grants	$40,417.00				$27,615.00	$68,032.00	3	4
Contracts								1
						$68,032.00	3	5
12100 - Grants	20,557.00					$20,557.00	1	2
Contracts								
						$20,557.00	1	2
12120 - Grants		$42,526.00			475,000.00	$517,526.00	3	7
Contracts								
						$517,526.00	3	7
AGRICULTURAL-POLLUTION CONTROL TECHNOLOGY								
13020 - Grants	109,106.00					$109,106.00	2	2
Contracts								
						$109,106.00	2	2
13030 - Grants					362,675.00	$362,675.00	2	2
Contracts	70,000.00					70,000.00	2	2
						$432,675.00	4	4
13040 - Grants	163,071.00	48,777.00			330,703.00	$542,551.00	7	7
Contracts								
						$542,551.00	7	7
MINING-POLLUTION CONTROL TECHNOLOGY								
14010 - Grants	173,532.00				$1,898,731.00	$2,042,263.00	16	23
Contracts	6,105.00				1,092,699.00	1,098,806.00	9	10
						$3,141,069.00	25	33

Program Elements	Section 5 Research	Section 5 Demonstration	Section 6A1	Section 6A2	Section 6B	Total FY 1969 Awards Amount	Total FY 1969 Awards No.	Active Projects in 1969
14020 - Grants								1
Contracts								1
								1
14030 - Grants	$38,000.00					$38,000.00	1	1
Contracts								
						$38,000.00	1	1
OTHER-SOURCES-OF-POLLUTION CONTROL TECHNOLOGY								
15020 - Grants								
Contracts	330,805.00					$330,805.00	4	4
						$330,805.00	4	4
15030 - Grants		$41,343.00				$41,343.00	1	1
Contracts								
						$41,343.00	1	1
15050 - Grants		60,600.00				$60,600.00	1	1
Contracts								
						$60,600.00	1	1
15060 - Grants	11,475.00					$11,475.00	1	1
Contracts								
						$11,475.00	1	1
15080 - Grants	28,816.00	155,765.00			$529,491.00	$714,072.00	7	8
Contracts					542,423.00	542,423.00	12	12
						$1,256,495.00	19	20
WATER QUALITY CONTROL TECHNOLOGY								
16010 - Grants	813,681.00	264,551.00				$1,078,432.00	27	28
Contracts	164,116.00					166,116.00	4	4
						$1,244,548.00	31	32

Program Elements	Section 5 Research	Section 5 Demonstration	Section 6A1	Section 6A2	Section 6B	Total FY 1969 Awards Amount	Total FY 1969 Awards No.	Active Projects in 1969
16020 - Grants	$165,514.00	$45,840.00				$211,354.00	9	9
Contracts	20,519.00					20,519.00	2	3
						$231,873.00	11	12
16030 - Grants	242,727.00	26,107.00				$268,834.00	10	10
Contracts								1
						$268,834.00	10	11
16040 - Grants	8,212.00					$ 8,212.00	1	1
Contracts	96,521.00					96,521.00	1	1
						$104,732.00	2	2
16050 - Grants	354,862.00					$354,862.00	11	12
Contracts	92,641.50					92,641.50	2	2
						$447,503.50	13	14
16060 - Grants	201,551.00	71,836.00				$273,387.00	12	12
Contracts								1
						$273,387.00	12	13
16070 - Grants	197,756.00	339,930.00				$537,686.00	9	10
Contracts	87,269.00					87,269.00	3	4
						$624,955.00	12	14
16080 - Grants	55,843.00	136,954				$192,797.00	5	5
Contracts	129,564.00					129,564.00	2	2
						$322,361.00	7	7
16090 - Grants	377,134.00	473,131.00				$ 850,265.00	14	19
Contracts	750,363.00				$310,613.00	1,060,976.00	4	4
						$1,911,241.00	18	23

Program Elements	Section 5 Research	Section 5 Demonstration	Section 6A1	Section 6A2	Section 6B	Total FY 1969 Awards Amount	Total FY 1969 Awards No.	Active Projects in 1969
WASTE TREATMENT & ULTIMATE DISPOSAL TECHNOLOGY								
17010 - Grants	$226,774.00	$228,422		$758,584.00		$1,213,780.00	14	17
Contracts	446,165.00			961,936.00		1,408,101.00	13	17
						$2,621,881.00	27	34
17020 - Grants	118,743.00					$ 118,743.00	8	8
Contracts	248,283.00			823 043.00		1,071,326.00	7	10
						$1,190,069.00	15	18
17030 - Grants	196,607.00			48,548.00		$245,155.00	9	11
Contracts	28,000.00			431,009.00		459,009.00	2	3
						$704,164.00	11	14
17040 - Grants				55,795.00		$ 55,795.00	1	1
Contracts	290,202.00			54,865.00		345,067.00	5	6
						$400,862.00	6	7
17050 - Grants	220,110.00	58,449.00		124,204.00		$402,763.00	11	15
Contracts	359,970.00			528,000.00		887,970.00	8	10
						$1,290,733.00	19	25
17060 - Grants	63,214.00	128,254.00				$191,468.00	3	4
Contracts	138,286.00					138,286.00	1	1
						$329,754.00	4	5
17070 - Grants	220,981.00			844,004.00		$1,064,985.00	11	12
Contracts	206,115.00			268,426.00		474,541.00	7	8
						$1,539,526.00	18	20
17080 - Grants	57,698.00			1,408,576.00		$1,466,274.00	5	10
Contracts				292,297.00		292,297.00	2	3
						$1,758,571.00	7	13
17090 - Grants	71,066.00					$ 71,066.00	3	3
Contracts	428,103.00					428,103.00	7	11
						$499,169.00	10	14

Program Elements	Section 5 Research	Section 5 Demonstration	Section 6A1	Section 6A2	Section 6B	Total FY 1969 Awards Amount	Total FY 1969 Awards No.	Active Projects in 1969
WATER QUALITY REQUIREMENTS RESEARCH								
18010 - Grants	$22,512.00					$22,512.00	1	1
Contracts	81,712.00					81,712.00	1	1
						$104,224.00	2	2
18020 - Grants	26,240.00					$26,240.00	1	1
Contracts	80,309.00					80,309.00	1	1
						$106,549.00	2	2
18040 - Grants	28,487.00					$ 28,487.00	1	1
Contracts	99,700.00					99,700.00	1	1
						$128,187.00	2	2
18050 - Grants	1,682,457.00	$77,850.00				$1,760,307.00	51	51
Contracts	522,828.00					522,828.00	4	7
						$2,283,135.00	55	58

RESEARCH, DEVELOPMENT AND DEMONSTRATION PROGRAM

1100 - MUNICIPAL-POLLUTION CONTROL TECHNOLOGY

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
1101 - Sewered Wastes			
Section 5 Demonstration Grants			
University of Michigan Ann Arbor, Michigan	Application of Programmed Learning to Water Chemistry	11010DWY	_____*
Section 6A2 Advanced Waste Treatment Grants			
Cuyahoga County Board of Commissioners Cleveland Ohio	Chemical Clarification & Carbon Filt. & Adsorption as Second Treatment Plants. Cuyahoga County , Ohio	11010DAB	741,350.00
Manville Borough of Manville. New Jersey	New Process to Improve Quality of Trickling Filter Effluent	11010DJC	425,000.00
Lake County Ohio Painesville Ohio	Porteous Process for Heat - Treatment of Sludge	11010DKI	377,099.00
Metropolitan Sanitary District of Greater Chicago Chicago Ill.	Land Reclamation Through Use of Digested Sewage Sludge - Phase 2	11010DPW	610,500.00
Port Arthur City of Port Arthur, Texas	Chemical and Biological Testing and Evaluation of Control Hydrogen	11010DYO	56,046.00
Metropolitan Sanitary District of Greater Chicago Chicago. Ill.	Performance Analysis of 15 MGD Dicrostrainer for Tertiary Treatment	11010EBW	148,027.00
Pewaukee Village of Pewaukee Wisconsin	Demonstrate the Allis-Chalmers Donau Waste Treatment Plant	11010EBX	353,972.00
Richardson, City of Richardson, Texas	A Demonstration on Enhancement of Effluent From a Trickling Filter	11010EGL	200,276.00
Lake County of Painesville, Ohio	Water Pollution Abatement Program for Mentor Lake County Ohio	11010EGO	_____*

*Active in FY 1969 - Supported by funds awarded in previous years.

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Jefferson Parish, Dept. of Sanitation Metairie, Louisiana	Study Involving Aeration to Freshen Sewage and Retard Bacterial Activity in Long Sewer Lines	11010ELP	_____*
Los Angeles County Sanitation District No. 2 Los Angeles, California	Basic Research on Sulfide Occurrence and Control in Sewage Collection	11010ENX	_____*
Austin, City of Austin, Texas	Design Guides for Selective Wastewater Treatment Processes	11010ESQ	_____*
Milwaukee, City of, Sewage Commission Milwaukee, Wisconsin	Development of a System for Conditioning and Dewatering Sludge by Freezing	11010EVE	_____*
Metro Sanitation District of Greater Chicago Chicago, Ill.	Hanover Tertiary Plant Studies	11010EZJ	_____*
Metropolitan St. Louis Sewer District St. Louis, Missouri	Evaluation of Odor Control by Covering a Sludge Thickener	11010EZQ	_____*
San Antonio River Authority San Antonio, Texas	Contact Stabilization Operating Parameters	11010EZT	_____*
Hollywood, City of Hollywood, Florida	Aerobic Digestion of Sewage Sludge with Effluent Disposal by an Ocean Outfall	11010FAC	_____*
Section 6A2 Advanced Waste Treatment Contracts			
University of North Carolina Chapel Hill, North Carolina	Improving Tricking Filter Based Treatment System	11010DGA	585,000.00
Koenig, Louis Research, San Antonio, Texas	Operations Research & Logistics for Advanced Waste Treatment Research	11010DNT	52,838.00
1102 - Combined Sewer Discharges			
Section 5 Research Grants			
Lehigh University Bethlehem, Pennsylvania	Transport of Solid Suspension in Conduits	11023EKD	37,000.00
Section 5 Demonstration Grants			
Merrimack College, North Andover, Massachusetts	Controlling Pollution from Combined Sewer and Storm-water Overflows by Electrode Potential	11020DOK	21,563.00

*Active in Fy1969 - Supported by funds awarded in previous Year.

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 6A1 Storm and Combined Sewer Grant			
Board of County Commissioners, Montgomery County, Ohio Kettering, Ohio	Determination of Ground Water Infiltration & the Effects	11020DHQ	96,570.00
Buffalo, City of Buffalo, New York	Program for Preventing & Eliminating Oil Pollution of the Buffalo River through Combined Sewers & other Means	11020DJG	552,895.00
San Francisco, City & County San Francisco, California	Treatment of Combined Sewer Overflows by the Dissolved Air Flotation	11020DXC	921,000.00
Akron, City of Akron, Ohio	Underground Storage Tank	11020DXH	562,500.00
South St. Paul Sewage Disposal Commission South St. Paul, Minnesota	Efficiancy and Economy of Polymeric Sewage Clarification	11020EKK	____ __*
Chicago, Illinois	Lawrence Avenue Underflow System	11020EMD	_____*
Cleveland, City of Cleveland, Ohio	A Program for Demonstrating Combined Sewer Overflow Control Techniques for water Quality Improvement and Beach Protection	11020EZW	_____*
Columbus, City of Columbus, Ohio	Modification of Whittier Street Storm Stand-by Tanks	11020FAL	_____*
Shelbyville, City of Shelbyville, Ill.	Sewage Treatment Facilities for City of Shelbyville, Illinois	11020FAM	_____*
Borough of New Providence, New Providence, New Jersey	Utilization of High Trickling Filters for Treatment of Combined Sewer Overflows	11020FAN	_____*
New York, City of New York, New York	Characterization of Those Parameters that Measure the Effects of Combined Overflows	11020FAO	_____*
Minneapolis-St. Paul Sanitary District St. Paul, Minnesota	Dispatching System for Control of Combined Sewer Losses	11020FAQ	_____*
New Orleans, Sewage and Water Board of New Orleans, Louisiana	Chlorination and Hypochlorination of Polluted Storm Water Pumpage	11020FAS	_____*

* Active in FY1969 - Supported by funds awarded in previous years.

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Milwaukee, City of Milwaukee, Wisconsin	Humboldt Avenue Overflow Detention and Chlorination Facility	11020FAU	_____*
East Chicago, Sanitary District East Chicago, Ind.	East Chicago Treatment Lagoon	11020FAV	_____*
Dallas, City of Dallas, Texas	Storm Water Treatment Facility	11020FAW	_____*
Detroit, City of Detroit, Michigan	System Monitoring and Remote Control	11020FAX	_____*
New York, City of New York, New York	Installation and Evaluation of a Unique Flow Regulating Device Called Ponsar Regulator	11020FDP	_____*
Springfield Sanitary District Springfield, Ill.	Cook Street Storm Overflow Treatment Works	3-Ill.-1	_____*
Section 6A1 Storm and Combined Sewer Contracts			
The Franklin Institute Philadelphia, Pa.	Selected Abstracts of Storm Water Discharges and Combined Sewer Overflows	11020DES	3,978.00
Bowles Engineering Corporation Silver Spring, Md.	Fluidic Interceptor Study	11020DGZ	58,891.00
Western Company Richardson, Texas	Methods to Reduce Water Pollution Caused by Storm Water sewer Loading by using Fluid Flow Friction Reducers	11020DIG	40,348.00
Western Company Richardson, Texas	Development and Demonstration of Materials to Reduce or Eliminate Water Infiltration into Sewerage	11020DIH	9,824.00
Black, Crow & Eidsness Atlanta, Georgia	An Engineering Investigation of Combined Sewer Problems of Atlanta, Ga.	11020DLB	263,826.00
Hays, Seay, Mattern & Mattern Roanoke, Virginia	Perform and Engineering Investigation for Control of Water Pollution	11020DMS	104,191.00
American Public Works Association Chicago, Illinois	Analysis of Regulator Facilities - Application & Maintenance	11020DMU	65,000.00

*Active inFY1969 - Supported by funds awarded in previous years.

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
FMC Corporation Santa Clara, California	Evaluation of a Periodic Flushing System for Combined Sewer Cleansing	11020DNO	323,600.00
Rand Development Corp. Cleveland, Ohio	Design, Construction, Operation & Evaluation of aRapid Flow Combustible Filter for Treatment of Combined Sewer Overflow	11020DPI	105,000.00
Melpar, Inc. Falls Church, Virginia	Construction of a Facility to Demonstrate Off-Shore Underwater Temporary Storage of Storm Overflow from a Combined Sewer	11020DPP	_____*
Battelle Memorial Institute Richland, Washington	Development, Demonstration, & Evaluation of Physical-Chemical Treatment	11020DSQ	391,310.00
Underwater Storage, Inc. Washington, D. C.	Pilot Plant Underwater Storage Facility	11020DWF	85,696.00
American Radiator & Standard Sanitary Corporation, American Standard Research Division New Brunswick, New Jersey	A Suspended Solids Monitor	11020DZB	121,946.00
Karl R. Rohrer Associates, Inc Akron, Ohio	Construction of a Facility to Demonstrate Off-Shore Underwater Temporary Storage of Storm Overflow from a combined Sewer	11020DZC	5,519.00
American Process Equipment Corp. Los Angeles, California	Fabrication and Evaluation of an Ultrasonic System for Treating Sewage	11020DZF	_____*
Karl R. Rohrer Associates, Inc. Akron, Ohio	Design Construction and Operation of a Pilot Facility to Demonstrate Off Shore, Underwater Temporary Storage of Storm Overflow From a	11020ECV	61,647.00
American Society ofCivil Engineers Cambridge, Mass.	Feasibility of Development of New Methods of Separation of Sanitary Sewage from Combined Sewerage Systems	11020EKO	4,500.00
Metcalf & Eddy, Inc. Palo Alto, Calif.	Engineering Investigation of the East Bay Municipal Utility	11020EQG	_____*
Formerly, Glenfield & Kennedy, Inc. Philadelphia, Pa.	Microstraining Pilot Tests	11020EVO	_____*

* Active in FY 1969 - Supported by funds awarded in previous years.

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Roy F. Weston, Inc. West Chester, Pa.	Develop and Demonstrate a Method for Assessing the Extent of Pollution from Storm Water Runoff in an Urban Area	11020EXF	_____*
Rex Chainbelt Inc. Milwaukee, Wisconsin	Development and Demonstration of a Combined Sewer Overflow Treatment System Utilizing New Concepts of Screening and Chemical Oxidation	11020FDC	_____*
Cornell, Howland, Hayes, Merryfield Engineers and Planners Corvallis, Oregon	High Rate, Fine Mesh Vibratory Screen Demonstration	11020FDD	_____*
Henningson, Durham & Richardson, Inc. Omaha, Nebraska	Develop and Demonstrate a Method for Assessing the Extent of Pollution from Storm Water Runoff in an Urban Area	11020FEJ	_____*
Section 6A2 Advanced Waste Treatment Grant			
Somersworth, City of Somersworth, New Hampshire	Somersworth Combined Sewage Overflow Treatment Project	11020FAP	_____*
Section 6A1 Storm and Combined Sewer Grant			
New York State Dept. of Health Albany, New York	Pressure Sewer System Demonstration	11022DQI	200,800.00
Dallas, City of Dallas, Texas	Bachman Creek Sewer Overflow Pollution Reduction	11022DZU	331,233.00
Section 6A1 Storm and Combined Sewer Contract			
Seattle, Municipality of Metropolitan Seattle, Washington	Duwamish River-Elliot Bay Storm Water Control System	11022ELK	_____*
Section 6A1 Storm and Combined Sewer Grants			
Mt. Clemens, City of Mount Clemens, Mich.	A Combined Sewage Collection & Treatment Facility	11023FAR	_____*
Metropolitan District Commission Boston, Massachusetts	The Construction of a Storm Detention and Clorination Station	11023FAT	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Chippewa Falls, City of Chippewa Falls, Wisconsin	Construction of a Combined Storm Water Pumping Station and Storage	11023FIY	_____*
Section 6A1 Storm and Combined Sewer Contracts			
Ionics, Inc. Watertown, Mass.	Hypoclorination to Sterilize Storm Sewer Outfalls	11023DAA	74,646.00
Rhodes Corporation Oklahoma City, Okla.	Demonstration Project of a Prototype Treatment Plant Design to Treat Wastes Found at a Combined Sewer	11023FKI	_____*
Section 5 Research Grant			
University of Cincinnati Cincinnati, Ohio	Urban Runoff Characteristics	11024DQU	52,905.00
Section 5 Research Contract			
Burgess and Niple, Limited Consulting Engineers Columbus, Ohio	Develop the Relation Between Land-Use Practices and Incidence of Pollution in Urban Storm Water	11024FKN	_____*
Section 6A1 Storm and Combined Sewer Contract			
Metcalf & Eddy Engineers Palo Alto, California	A Proposal to Study the Means of Controlling Pollution Resulting from Combined Sewer Overflows & Surface & Stormwater Runoff	11024DOC	253,800.00
Water Resources Engineers Inc. Walnut Creek, California	Optimization of Storm Water Pollution Control	11024ERI	114,860.00
University of Florida Gainsville, Florida	Storm Water Pollution Control Management	11024ERJ	144,990.00
Aerojet-General Corp. El Monte, California	Role of Solids in Combined Sewage Pollution	11024FKJ	_____*
Aerojet-General Corp.	A Method for Assessing the Extent of Pollution from Storm Water	11024FKM	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
1103 - Storm Sewer Discharges			
Section 6A1 Storm and Combined Sewer Grant			
South Saint Paul, City of South Saint Paul, Minnesota	Temporary Detention of Storm & Combined Sewage in Natural Underground	11030DSL	285,000.00
Section 6A1 Storm and Combined Sewer Contract			
Hittman Associates, Inc. Baltimore, Maryland	System Study, Design & Evaluation of Local Storage, Treatment & reuse	11030DNK	17,800.00
American Public Works Association Chicago, Ill.	Study of Methods for Reducing Water Pollution Discharges through Defined Public Work Practices	11030DNS	7,755.00
Dow Chemical Company Midland, Michigan	Demonstration and Evaluation of Polymeric Additives in Treatment of Storm Sewer Overflow	11030FDB	_____*
Economic Systems Corp. Washington, D.C.	Develop the Relation between Land-Use Practices and Incidence of Pollution in Urban Storm-water	11030FKL	_____*
Section 6A1 Storm and Combined Sewer Grant			
La Salle, City of La Salle, Ill.	Construction & Technical Evaluation of the Various Aspects of an Aluminum Storm Sewer System	11032DTI	432,276.00
1104 - Non Sewered Runoff			
Section 5 Research Grant			
University of Michigan Ann Arbor, Michigan	Rainfall - Runoff Relations on Urban & Rural Areas	1104ODRS	18,986.00
Section 6A1 Storm and Combined Sewer Contract			
Dow Chemical Company Midland, Michigan	Rock Creek Park Clarification Project	1104ODMX	8,562.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
1105 - Non-Sewered Municipal Wastes			
Section 5 Demonstration Grant			
Grandview Lake Lot Owners Association Columbus, Indiana	Econ. Resid. Press. Sewage System with no Effluent	11050DEU	99,141.00
Section 5 Research Contract			
General Dynamics, Electric Boat Division Groton, Connecticut	Study for Flow Reduction and Treatment of Waste Water from Households	11050FKE	_____*
1106 - Joint (Mun./Ind.) Wastes			
Section 6A2 Advanced Waste Treatment Grant			
Harriman Utility Board Harriman, Tennessee	Treatment of Combined Sewage & Neutral Sulfite Semichem Pump & Paper Mill Wastes by High Rate Biological Filtration & Extended Aeration	11060DBF	238,905.00
Tualatin, City of Tualatin, Oregon	Tertiary Treatment of Combined Domestic & Industrial Wastes	11060DLF	173,100.00
Macon, City of Macon, Georgia	Pilot Study of Treatment of Combined Mun. & Ind. Wastes in Selected Primary & Bio. Secondary Facilities for the Reduction of Waste Materials Discharged	11060DPD	128,883.00
Delaware River Basin Commission Trenton, New Jersey	Deepwater Pilot Plant-Engineering and Interceptor Feasibility Study	11060DRO	646,700.00
Village of Walton Walton, New York	Dynamic Process Development for Biological Treatment of Whey Bearing Wastes	11060DUJ	52,730.00
Board of Public Works Fort Wayne, Indiana	Demonstration of Phosphate Removal & Other Wastewater Treatment	11060DXX	283,200.00
Green Bay Metropolitan Sewerage District Green Bay, Wisc.	Combined Industrial & Municipal Waste Treatment	11060EDX	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Jacksonville, City of Jacksonville Arkansas	Demonstration of Facility for the Biological Treatment of a Complex Chlorophenolic Waste	11060EGK	_____*
Hagerstown, City of Hagerstown, Maryland	A Proposal for Pretreatment of Combined Industrial-Municipal Wastewaters	11060EJD	_____*
Erie, City of Erie, Pennsylvania	Joint Treatment of Domestic Sewage and Pulp and Paper Mill Waste	11060EOC	_____*
Dallas, City of Dallas, Texas	Combined Treatment of Domestic and Industrial Wastes by the Completely Aerobic Aeration Method	11060EZR	_____*
Cedar Rapids, City of Cedar Rapids, Iowa	Fly Ash Filter Aid of Sewage Solids Dewatering and Disposal	11060EZX	_____*
Onondaga County Syracuse, New York	A Demonstration of Joint Municipal-Industrial Waste Treatment in the Onondaga Water Shed	11060FAE	_____*
Section 6B Industrial Waste Treatment Grant			
Grand Forks, City of Grand Forks, North Dakota	Controlled Treatment of Combined Potato Processing-Municipal Wastes by an Aerobic Fermentation Aerobic Stabilization	11060DJB	_____*
Stockton, City of Stockton, California	Upstream Packing House Waste Treatment Demonstration, City of Stockton	11060DRT	381,078.00
Aerojet-General Corporation El Monte, California Odessa, Texas	Demonstration of Industrial Water Renovation Plant at Odessa, Texas	11060FAJ	_____*

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1200 - INDUSTRIAL-POLLUTION CONTROL TECHNOLOGY

1201 - Metal and Metal Products

Section 5 Research Grant

Clarkson College of Technology Potsdam New York	Metal Removal Recovery from Polluted Water by Complexation with Linear Polyelectrolyte	12010DHP	24,328.00
University of Utah Salt Lake City Utah	Depression of Pyrite without the Use of Cyanide	12010DIM	12,663.00
University of Waterloo Waterloo, Ontario Canada	Detoxication Cyanide Wastes by Electrooxidation	12010DOT	12,429.00

Section 6B Industrial Waste Treatment Grant

Rai Research Corporation Long Island City, New York	Treatment of Cyanide Rinse Waters by Electrodialysis	12010DES	58,685.00
Beaton & Corbin Mfg. Co. Southington, Connecticut	Chemical Treatment of Plating Waste Elimination of Chronium	12010DMF	37,250.00
E & I Steel Corporation Denver, Colorado	Research Study of Coal Preparation Plant & By Product Coke Plant Effluent	12010DNE	86,500.00
Volce Brass & Copper Co. Kenilworth, New Jersey	Treatment Recovery, & Reuse of Copper Wire Mill Pickling Wastes	12010DPF	124,000.00
Interlake Steel Corporation Chicago, Illinois	Pollution Control of Blast Furnace Gas Washer through Recirculation	12010DRE	175,200.00
American Electroplaters Society	Study of Reverse Osmosis for Treating Metal Finishing Effluent	12010DRH	49,737.00
S. K. Williams Co. Milwaukee, Wisconsin	Electroplating Waste Treatment & Water Reuse	12010DSA	87,750.00
Armco Steel Corporation Middletown, Ohio	Treatment of Acid Rinse Water	12010DUL	547,500.00
American Iron and Steel Institute New York, New York	Biological Removal of Carbon and Nitrogen Compounds from Coke Plant	12010EDY	109,200.00
Metal Finishers Foundation Upper Montclair, New Jersey	An Investigation of Techniques for the Removal of Chromium and Cyanides from Electroplating Wastes	12010EIE	_____*
Armco Steel Corporation Middletown, Ohio	Treatment of Waste Water - Waste Oil Mixtures	12010EZV	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Chemical Separation Corp. Oak Ridge, Tennessee	Acid Pickle Liquor Waste Treatment Utilizing Advanced Ion Exchange Techniques	WPRD 41-01-68	_____*
1202 - Chemicals and Allied Products			
Section 5 Research Contract			
Cyrus WM. Rice & Co. Pittsburgh, Pennsylvania	Cost Effectiveness Study of Industrial Waste Water Treatment Practices	14-12-435	_____*
Section 6B Industrial Waste Treatment Grant			
Union Carbide Corporation Bound Brook, New Jersey	Anaerobic Treatment of Synthetic Organic Waters	12020DIS	220,400.00
B. F. Goodrich Company Cleveland, Ohio	Waste Treatment Facilities for Polyvinyl Chloride Manufacturing Plant	12020DJI	364,900.00
Lakeway Chemicals, Inc. Muskegon, Michigan	Demonstration Project for Prevention of Pollution of Water by Chlorides	12020DJJ	99,000.00
Louisiana, State of Baton Rouge, Louisiana	Evaluation of Polymeric Materials for the Treatment	12020DQC	48,295.00
Dow Chemical Company Midland, Michigan	Demonstration and Reuse of Organically Contamined Brines from Chemical Process Industries	12020EAS	509,810.00
E.I. DuPont DeNemours and Company Wilmington, Delaware	Ocean Disposal of Industrial Wastes	12020EAW	150,116.00
Dow Chemical Company Midland, Michigan	Treatment of Waste Waters Resulting from the Production of Polyhydric Organic	12020EEQ	197,740.00
Farmers Chemical Association Inc. Harrison, Tennessee	Removal of Nitrogenous Compounds from a Fertilizer Plant Effluent Using Modified Operation of Conventional Waste Treatment Systems	12020EGM	154,210.00
Section 6B Industrial Waste Treatment Contract			
Engineering-Science, Inc. Arcadia, California	Preliminary Investigation Requirements, Petrochemical-Refinery Waste	12020EID	15,904.00
Cyrus Wm. Rice and Co. Pittsburgh, Pennsylvania	Organic Chemical Waste treatability Cost State of the Art	12020EJI	55.327.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
1204 - Paper and Allied Products			
Section 5 Research Grant			
Montana State University Bozeman, Montana	Color & Mineral Removal from Kraft Bleach Wastes	12040DBD	27,324.00
University of Washington Dept. of Chem. Engrg.	Studies of Low Molecular Weight Legnin Sulfonates	12040DEH	32,707.00
Oregon State University Corvallis, Oregon	Slime Growth Evaluation of Treated Pulp Mill Wastes	12040DLQ	12,910.00
Oregon State University Corvallis, Oregon	Pulp Mill Effluent Disposal	12040EBY	19,237.00
University of Washington Seattle, Washington	Pollution Abatement by Fiber Modification	12040EFC	37,850.00
University of Washington Seattle, Washington	Steam Stripping of Kraft Pulp Mill Efflent Streams	12040EXQ	_____*
Section 5 Research Contract			
Electro-Optical Systems, Inc. Pasadena, California	Plasma Arc Processing of Sulfite Waste Liquors	14-12-162	_____*
Section 6B Industrial Waste Treatment Grant			
Institute of Paper Chemistry Appleton, Wisconsin	Chemical & Physical Nature of Color Bodies in Kraft Mill Effluents	12040DKD	119,504.00
Continental Can Co., Inc. Hodge, Louisiana	Color Removal & Fibrous Sludge Process for the Kraft Paper Industry	12040DRY	750,000.00
International Paper Company New York, New York	Evaluation & Demonstration of the Massive Line Process for the Removal of Color from Kraft Pulp Mill Wastes	12040DYD	595,000.00
Georgia Kraft Company Rome, Georgia	Treatment of Selected Kraft Mill Wastes in Cooling Towers for Reduction of B.O.D. and Heat Discharged to Receiving Streams	12040EEK	_____*
Pulp Manufacturers Research League, Inc. Appleton, Wisconsin	Development of Reverse Osmosis for In-Plant Treatment of Dilute Pulping Industry Wastes	12040EEL	_____*
St. Regis Paper Company West Nyack, New York	The Production and Use of Activated Carbon for Water Renovation in Kraft Pulp and Paper Mills	12040EJU	878,472.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Crown Zellerbach Corporation San Francisco, California	Economic Optimization of Secondary Treatment and Determination of Load to Control Biological Growths in a Stream	12040ELW	_____*
Mead Corporation Chillicothe, Ohio	Evaluation of Role of High Rate Trickling Filters and Aeration Devices Separately and in Combination for the Advanced Biological Treatment	12040EMY	_____*
Interstate Paper Corp. New York, New York	Chemical Coagulation Color Removal System for Kraft Mill Effluent	12040ENC	_____*
Crown Zellerbach Corp. San Francisco, California	A Demonstration Plant Evaluation of Four Methods for Pulp and Paper	12040ESV	_____*
Georgia Kraft Company Rome, Georgia	Treatment of Kraft Mill Effluent by Foam Separation	12040EUG	_____*
North Carolina State University Raleigh, North Carolina	Filtration of Kraft Pulp Liquor through Chips	12040EZZ	_____*

1205 - Petroleum and Coal Products

Section 5 Research Grant

Texas A&M Research Foundation College Station, Texas	Metal Ion-Catalyzed Oxidation of Phenol and Aromatic Amines	12050DIT	40,265.00
University of Oklahoma Norman, Oklahoma	State of the Evaluation on Petroleum & Coal Wastes	12050DKF	14,297.00
Illinois Institute of Technology Chicago, Illinois	Efficiency of Fibrous Bed Coalescers	12050DRC	32,596.00

Section 6B Industrial Waste Treatment Grant

American Oil Company Chicago, Illinois	Treatment of Refinery Effluent by a Unique Combination of Biological Chemical Processes	12050DML	336,535.00
American Petroleum Institute New York, New York	Improved Capabilities of Biological Systems to Assimilate oil	12050DSH	51,470.00
American Oil Company Whiting, Indiana	Fluid-Bed Incineration of Petroleum Refinery Wastes	12050EKT	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 6B Industrial Waste Treatment Contract			
Engineering-Science, Inc. Arcadia, California	The Characteristics & Pollution Problems Associated with Petrochemical Wastes	12050DMT	11,190.00
1206 - Food and Kindred Products			
Section 5 Research Grant			
Beet Sugar Development Foundation Fort Collins, Colorado	State-of-Art. Sugarbeet Processing Waste Treatment	12060DSI	14,310.00
Oregon State University Corvallis, Oregon	Water Pollution Abatement in the United States Seafoods Industry the State of the Art	12060ECF	17,695.00
National Canners Assoc. Washington, D. C.	Production and Disposal Practices for Liquid Wastes from Canning and Freezing Fruits and Vegetables	12060EDK	20,025.00
Ohio State University Research Foundation Columbus, Ohio	State of the Art of Dairy Plant Wastes and Waste-Treatment Systems	12060EGU	12,954.00
University of Washington Seattle, Wash.	Status and Title Research Needs for Potato Waste Waters	WP-01486-01	_____*
Section 5 Demonstration Grant			
Melbourne Water Science Institute, Water Science Labs. Victoria, Australia	Cannery Waste Treatment by Lagoons and Oxidation Ditches	12060EHS	11,920.00
University of Puerto Rico Rio Piedras, P.R.	Disposal of Rum Distillery Wastes	12060FDR	_____*
Beet Sugar Development Foundation Fort Collins, Colo.	Anaèrobid - Aerobic Sugar Beet Waste Treatment	WPD 93-04-68	_____*
Section 6B Industrial Waste Treatment Grant			
Dairy Research & Development Corp. New York, New York	Elimination of Pollution by & Utilization of Protein Concentrates Dried When from Milk Residues of Cheese making	12060DEQ	551,350.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Farmbest, Inc., Denison, Iowa	Waste Treatment Facility	12060DFF	289,790.00
Corn Products Company Corporate Engineering Argo, Illinois	Treatment of Wastes from the Wet-Milling Industry	12060DPE	482,680.00
Swift & Company Oak Brook, Illinois	Removal & Recovery of Fatty Materials from Edtable Fat & Oil Refinery	12060DQV	249,307.00
University of Oklahoma Research Institute Norman, Oklahoma	Demonstration of a Full Scale Waste Treatment System for a Cannery	12060DSB	75,226.00
National Canners Assoc. Washington, D. C.	Evaluation of Controlled Temperature and Forced Aeration in Trickling Filters Treatment of Food Canning Waste Waters	12060EAE	18,350.00
Cotton Producers Assoc. Golden Kist Poultry Div. Atlanta, Ga.	Water and Waste Management in Poultry Processing	12060EGV	198,366.00
North Star Research and Development Institute Minneapolis, Minnesota	Use of Fungi Imperfection in Waste Control	12060EHT	_____*
National Canners Assoc. Washington, D. C.	Reconditioning and Re-Use of Food Processing Brines	12060EHU	_____*
R.T.French Company Rochester, New York	Aerobic Secondary Treatment of Potat. Processing Waste	12060EHV	_____*
R.A.I. Research Corp. Long Island City, New York	Improvement of Treatment of Food Industry Waste	12060ESY	_____*
John Morrell & Co. Ottumwa, Iowa	Aerobic Treatment of Packing-house Wastes	12060EUB	_____*
FMC Corporation Santa Clara, California	Cannery Waste Treatment by the Kehr Activated Sludge Process	12060EZP	_____*
Winter Garden Citrus Products Cooperative Winter Garden, Florida	Lime Treatment and Inplant Reuse of an activated Sludge Plant Effluent in the Citrus Processing Industry	12060EZY	_____*
Snokist Growers Yakima, Wash.	Pollution Prevention by aeration of Fruit Processing Wastes	12060FAD	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Beet Sugar Development Foundation Fort Collins, Colorado	Concentration of Sugar Beet Wastes for Economic Treatment with Biological Systems	12060FAK	_____*
The Coca Cola Co. Foods Division Leesburg & Auburndale, Fla.	Removal of Organics and Nutrients from Citrus Processing Plant Wastes	WPRD 38-01-67	_____*
National Canners Association Washington, D.C.	Dry Caustic Peeling of Tree Fruit to Reduce Liquid Waste Volume and Strength	12060FQE	_____*
1207 - Machinery and Transportation Equipment			
Section 5 Demonstration			
Johns Hopkins University Baltimore Md.	Management of Recycled Waste-Process Water Ponds	WPD 117-03-68	_____*
1208 - Stone, Clay and Glass Products			
Section 6B Industrial Waste Treatment Grant			
Johns-Manville Products Corp. Manville, New Jersey	Experimental Closed Water System to Eliminate Waste Water Discharge from Johns-Manville Plant 3	12080EZF	_____*
1209 - Textile Mill Products			
Section 5 Research Grant			
Clemson University Clemson, South Carolina	Survey of the State of the Art of Textile Waste Treatment	12090ECS	30,007.00
North Carolina State University Raleigh, North Carolina	Textile Based Water Pollution Information Study	12090ECU	10,410.00
Section 6B Industrial Waste Treatment Grant			
Masland & Sons Carlisle. Penna.	Demonstration of a New Process for the Treatment of Textile Dyeing & Finishing Waste	12090DWM	27,615.00
Fiber Industries. Inc. Charlotte, North Carolina	Reuse of Plant Effluent and Cooling Water Blowdown as Process Water	12090EUX	_____*
Section 6B Industrial Waste Treatment Contract			
American Enka Corp. Enka, North Carolina	Zinc Precipitation and Recovery Plant	12090ESG	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
1210 - Lumber and Wood Products			
Section 5 Research Grant			
Oregon State University Corvallis, Oregon	Influence of Log Rafting on Water Quality	12100EBG	20,557.00
Section 6B Industrial Waste Treatment Grant			
Klamath Plywood Corporation Klamath, Oregon	Aerobic Secondary Treatment of Plywood Glue Wastes	12100EZU	_____*
1212 - Miscellaneous Industrial Sources			
Section 5 Research Grant			
American Water Works Assoc. Research Foundation New York, New York	Disposal of Wastes from Water Treatment Plants	12120ERC	_____*
Section 5 Demonstration Grant			
University of Virginia Charlottesville, Virginia	An Anaerobic - Aerobic Lagoon for Treating Vegetable Tannins	12120DIK	17,801.00
Rensselaer Polytechnic Institute Troy, New York	Removal of Syndets and Reclamation of Laundry Wastes	12120DOD	24,725.00
University of Cincinnati Cincinnati, Ohio	Treatment of Total Wastes from a Sole Leather Tannery	WPD 185-02-68	_____*
Section 6B Industrial Waste Treatment Grant			
S. B. Foot Tanning Co. Red Wing, Minnesota	Aerobic Biological Treatment Sludge Dewatering & Disposal & Effluent Reuse for a Side Leather Tannery	12120DSG	473,000.00
Caldwell Lace Leather Co. Auburn, Kentucky	Complete Treatment of Tannery Industrial Waste for Chrome Tanning, Alum Tanning and Vegetable Tanning	12120EFM	_____*
A.C. Lawrence Leather Co. Peabody, Massachusetts	Waste Water Treatment Pilot Plant Investigation, Mixed Chrome Tannery Wastewater and Municipal Sewage	WPRD 133-01-68	_____*

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1300 - AGRICULTURAL - POLLUTION CONTROL TECHNOLOGY

1302 - Rural Run-Off

Section 5 Research Grant

North Carolina State University Raleigh, North Carolina	Role of Animal Wastes in Agricultural Land Runoff	13020DGX	33,333.00
Cornell University Ithaca, New York	Agricultural Contributions to Nutrients in Water	13020DPB	75,773.00

1303 - Irrigation Return Flows

Section 5 Research Contract

Water Pollution & Bureau of Reclamation Washington, D.C.	Cooperative Herbicide Monitoring Study in Irrigation Systems	13030DRQ	20,000.00
Bureau of Reclamation Dept. of the Interior Washington, D.C.	Effect of Irrigation Return Flows on Water Quality	13030EII	50,000.00

Section 6B Industrial Waste Treatment Grant

Grand Valley Water Purification Project, Inc. Grand Junction, Colorado	Grand Valley Salinity Control Demonstration Project	13030DOA	350,175.00
American Association for the Advancement of Science	For Support of the 1969 - International Conference on Arid Lands in a Changing World	13030DYY	12,500.00

1304 - Animal Feed Lots

Section 5 Research Grants

Texas Technological College Lubboon, Texas	Characteristics of Wastes from Southwestern Cattle Feedlots	13040DEM	74,955.00
Michigan State University East Lansing, Michigan	Closed System Waste Management for Livestock	13040DKP	49,904.00
Cornell University Ithaca, New York	Tertiary Treatment of Animal Waste Water	13040DPA	38,212.00

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 5 Demonstration Grant			
Washington State University Pullman, Washington	Anaerobic-Aerobic Lagoon Treatment of Dairy Manure Wastes	13040DFN	30,400.00
University of Kansas Lawrence, Kansas	Cattle Feed Lot Waste Water Treatment	13040DWS	18,377.00
Section 6B Industrial Waste Treatment Grant			
Kansas State University Agricultural Engineering Manhattan, Kansas	Demonstration and Development of Facilities for the Treatment and Ultimate Disposal of Cattle Feedlot Wastes	13040DAT	136,608.00
Cornell University College of Agriculture Ithaca, New York	Animal Waste Management-Demonstration of Feasible Handling and Treatment Processes	13040DDG	194,000.00

1400 - MINING - POLLUTION CONTROL TECHNOLOGY

1401 - Mine Drainage

Section 5 Research Grant

Syracuse University Syracuse, New York	Inorganic Sulfur Oxidation by Iron-Oxidizing Bacteria	14010DAY	98,450.00
Mellon Institute Carnegie-Mellon University Pittsburgh, Pennsylvania	Acid Mine Drainage Pilot Plant Evaluation	14010DKN	40,117.00
University of Minnesota Mines Experiment Station, Minneapolis, Minnesota	Flocculation and Clarification of Mineral Suspensions	14010DRB	9,298.00
Harvard University Cambridge, Massachusetts	Microbial Mediation in Generation of Acid Mine Wastes	14010DTC	25,667.00
Ohio State University Research Foundation Columbus, Ohio	Acid Mine Drainage - An Analysis of the State of the Art	14010FPR	_____*
Ohio State University Research Foundation Columbus, Ohio	Study of the Sulfide-to-Sulfate Reaction Mechanism	14010FPS	_____*

Section 5 Research Contract

Cyrus Wm. Rice and Company Pittsburgh, Pennsylvania	Use of Inert Gases to Eliminate Acid Pollution from Abandoned Mines	14010DJL	6,105.00
Ohio State University Research Foundation Columbus, Ohio	Pilot Scale Study of Acid Mine Drainage	14010EXA	_____*

Section 6B Industrial Waste Treatment Grant

Peabody Coal Co. St. Louis, Missouri	Lime/Limestone Neutralization of Acid-Mine Drainage	14010DAX	472,400.00
Truax-Traer Coal Co. Chicago, Illinois	Demonstration of Control of Acid Drainage from Coal Mine Refuse Piles & Slurry Areas	14010DDM	490,560.00
Commonwealth of Pennsylvania Harrisburg, Pennsylvania	Neutralization & Precoat Filtration of Concentrated Sludges from Mine Waters	14010DII	70,539.00
Bituminous Coal Research, Inc. Monroeville, Pennsylvania	Sulfide Treatment of Acid mine Drainage	14010DLC	54,380.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Commonwealth of Pennsylvania Harrisburg, Pennsylvania	Preliminary Study & Report on Feasibility of the Purification of Acid Mine Water by a Partial Freezing Process	14010DRZ	10,500.00
Commonwealth of Pennsylvania Harrisburg, Pennsylvania	Evaluation Of Pollution Abatement Procedures in the State Park, Butler County, Pa.	14010DSC	15,120.00
Commonwealth of Pennsylvania Harrisburg, Pennsylvania	Catawissa Creek Mine Drainage Pollution Abatement Project	14010DSD	365,540.00
Commonwealth of Pennsylvania Harrisburg, Pennsylvania	Abatement of Acid Mine Drainage Pollution by Reverse Osmosis Phase I	14010DYK	27,598.00
Commonwealth of Pennsylvania	Develop and Test an In-Situ Technique for the Injection of a Mixture or Slurry of various Neutralising and Filler Materials into a Abandon Mine	14010EFJ	_____*
Pennsylvania, Commonwealth of Harrisburg, Pennsylvania	Use of Latex as a Soil Sealant to Control Acid Mine Waste Drainage	14010EFK	_____*
Pennsylvania, Commonwealth of Harrisburg, Pennsylvania	Study of the Use of Inert Gas to Eliminate Acid Pollution from Abandoned Deep Mines	14010EFL	45,884.00
Commonwealth of Pennsylvania Harrisburg, Pennsylvania	Construction of Mine Water Treatment Plant at Hollywood Pennsylvania	14010EFN	_____*
Pennsylvania, Commonwealth of Dept. of Mines & Mineral Industries Harrisburg, Pennsylvania	Application of Viable Antibacterial Agents to Reduce Pollution by Acid Mine Drainage	14010EGJ	_____*
Pennsylvania, Commonwealth of Dept. of Mines and Mineral Industries Harrisburg, Pennsylvania	Detection and Location of Concealed Abandoned Underground Mines and Associated Drainage by Geochemical Techniques	14010EHN	115,346.00
Pennsylvania, Commonwealth of Dept. of Mines and Mineral Industries Harrisburg, Pennsylvania	Development and Optimization of the Limestone treatment of Coal Mine Drainage	14010EIZ	74,536.00
West Virginia University Morgantown, Virginia	Mine Spoil Potentials for Water Quality and Controlled Erosion	14010EJE	156,328.00
Continental Oil Company Ponca City, Oklahoma	Microbiological Removal of Iron from Mine Drainage Water	14010ENW	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 6B Industrial Waste Contract			
Division of Engineering Development Cleveland, Ohio	Acid Mine Drainage	14010DEE	49,300.00
Tyco Laboratories Inc. Waltham, Massachusetts	Silicate Treatment of Acid Mine Waters	14010DLI	55.412.00
Halliburton Company Duncon, Oklahoma	Research Development & Field Testing of Mine Water Pollution	14010DMO	322,000.00
Ruble and Kaple, Inc. Duluth, Minnesota	Preliminary Design of Acid Mine Drainage Pilot Facility	14010DQY	4,708.00
Gulf General Atomics San Diego, California	Acid Mine Drainage Treatment	14010DYG	105,000.00
Catalytic Construction Co. Philadelphia, Pennsylvania	Treatment of Acid Mine Drainage	14010DYH	327,629.00
Black, Sivalls & Bryson Pittsburgh, Pennsylvania	Acid Mine Drainage Treatment	14010DYI	215,650.00
Bechtel Corporation San Francisco, California	Technical Feasibility & Analysis of Costs and Effectiveness of Bulk Transport of Sewage treatment Plant Sludge and Dredging Spoils	14010EMS	13,000.00
1402 - Oil Production			
Section 6B Industrial Waste Treatment Grant			
West Central Texas Municipal Water District Abilene, Texas	North Fork Alluvial Decontamination Project	1402OEHW	_____*
1403 - Oil Shale			
Section 5 Research Grant			
Colorado State University Fort Collins, Colorado	Evaluation of Potential Water Pollution From Spent and/or Burned Oil	1403OEDB	38,000.00

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1502 - Watercraft Wastes

Section 5 Research Contract

Uniroyal Company New York New York	Treatment of Watercraft Wastes	15020DGR	34,272.00
General Dynamics Corporation Groton, Connecticut	Request for Proposals-Treatment of Watercraft Wastes	15020DHB	32,719.00
Underwater Storage. Inc. Silver Schwartz. Ltd. Joint Venture Washington D.C.	Treatment of Watercraft Wastes from Small Vessels to Shore Treatment Facilities	15020DHE	99,000.00
General Electric Company Philadelphia Pennsylvania	Treatment of Watercraft Wastes	15020DHG	164,814.00

1503 - Construction Projects

Section 5 Demonstration Grant

National Association of Counties Research Foundation Washington, D.C.	Community Action Guide for Erosion & Sedimentation Control	15030DTL	41,343.00

1505 - Salt Water Intrusion

Section 5 Demonstration Grant

Arkansas Soil & Water Conservation Commission Little Rock, Arkansas	Rehabilitation of Brine-Polluted Aquifer	15050DLN	80,600.00

1506 - Natural Pollution

Section 5 Research Grant

University of Arizona Tuscon, Arizonia	Limnological Effect of Organic Watershed Litter	15060DNR	11,475.00

1508 - Oil Pollution

Section 5 Research Grant

Columbia University in the City of New York New York, New York	Molecular Interactions at the Oil-Water Interface and Formation of Micro-Emulsions	15080EMP	28,816.00
New York University Washington Square, New York	The Spreading of Oil Films	15080EPL	_____*

* Active in FY 1969 - Supported by funds awarded in previous years.

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 5 Demonstration Grant			
Florida State University Dept. of Oceanography Tallahassee, Florida	A Proposal to Study Petroleum Microorganisms for Pollution Control	15080EHF	105,803.00
Virginia Institute of Marine Science Glouchester Point, Virginia	Investigation of Surface Films-Chesapeake Bay Entrace	15080EJO	49,962.00
Section 6B Industrial Waste Treatment Grant			
National Oil Reclaiming Corp. Bayonne, New Jersey	Demonstration of the Complete Conversion of Crankcase Waste Oil into Useful Products-without Producing Pollutant Materials	15080DBO	387,331.00
Maine Port Authority Portland, Maine	Test and Evaluate System for Recovery and Disposal of Massive Oil Spills	15080DCE	64,350.00
Cleveland, City of Cleveland, Ohio	Oil Spillage Control	15080EHF	68,810.00
American Petroleum Institute New York, New York	Joint API-FWPCA Conference on Prevention and Control of Oil Spillage	15080EIL	9,000.00
Section 6B Industrial Waste Treatment Contract			
Pacific Northwest Laboratories A Division of Battelle Memorial Institute Richland, Washington	Research on Treatment of Oil Wastes	15080DJM	29,840.00
Western Company Richardson, Texas	Treatment of Oil Wastes	15080DJN	290,674.00
Melpar, Inc. Falls Church, Virginia	Oil Tagging Systems Study	15080DJO	50,000.00
Garret Corporation Los Angeles, California	Oil Water Separation System for Treatment of Oil Wastes	15080DJP	78,178.00
Sonics International Dallas, Texas	Alternate Concept Responding to Request for Proposal WA 68-141	15080DJQ	43,058.60
Aerojet General Corporation Environmental Systems Div., El Monte, California	Feasibility Analysis of Incinerator Systems for Restoration of Oil Contaminated Beaches	15080DKE	35,551.00

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
University of California Santa Barbara, California	A Preliminary Study of Oil Spill Damage in the Intertidal Regions of Santa Barbara and Ventura Counties California	15080DZR	7,135.00
University of Michigan Ann Arbor, Michigan	Multi-Spectrum Scanning to Determine Oil Slick Fate	15080EAF	16,235.00
Pacific Northwest Laboratories A Div. of Battelle Memorial Richland, Washington	Review of the Santa Barbara Channel Oil Pollution Incident	15080EAG	22,900.00
University of California Santa Barbara, California	Proposal to Study the Abundance Composition of Deep and Shallow Water, Macro-Plankton and Littoral Fish Populations in and about the Santa	15080EAL	17,293.00
University of California La Jolla, California	Management and Treatment of Waterfowl Trapped in Oil Polluted Waters	15080EBZ	30,709.00
Poliakoff, Melvin Z. Tenafly, New Jersey	State-of-the Art Report on the Composition Properties and Uses of Oil	15080EHO	850.00

1600 - WATER QUALITY CONTROL TECHNOLOGY

1601 - Eutrophication

Section5 Research Grant

Cornell University College of Agriculture Ithaca, New York	Eutrophication of Tidal Waters	16010DBQ	27,184.00
University of Florida Gainesville, Florida	Chemistry of Nitrogen in Natural Water	16010DCK	26,226.00
University of Alaska College. Alaska	Dynamics of the Nitrogen Cycle in Lakes	16010DDS	59,817.00
University of Minnesota Limnological Research Minneapolis, Minnesota	Effect of Sewage Effluents on Algae in Shagawa Lake	16010DEG	24,124.00
University of Michigan Dept. of Environmental & Industrial Health Ann Arbor, Michigan	An In Situ Evaluation of Nutrient Effects in Lakes	16010DEJ	24,887.00
University of North Dakota Grand Forks, North Dakota	Nutrient Dynamics in an Artifically Enriched Lake	16010DFI	19,208.00
Rensselaer Polytechnic Institute Troy, New York	Organic Nutrient Factors Effecting Algal Growths	16010DHN	62,500.00
Stanford University Stanford, California	Algal Degradation in Waterways	16010DLJ	28,366.00
Washington State University Pullman, Washington	Flushing of Small Shallow Lakes	16010DMG	7,538.00
University of California Berkeley, California	Provisional Algal Assay Procedures - UCB ENG-3025	16010DQB	48,465.00
University of North Carolina Chapel Hill, North Carolina	Provisional Algal Assay Procedures	16010DQT	43,523.00
Harvard College President & Fellows of Cambridge, Massachusetts	Phosphate Exchange with Sediments	16010DSJ	24,616.00
University of Florida Gainesville, Florida	Primary Production & Decomposition in Estuarine Water	16010DTK	13,219.00
University of Minnesota Minneapolis, Minnesota	Community Analysis in the Littoral Zone of Lakes	16010DXG	49,132.00
Warf Institute Inc. Madison, Wisconsin	The Carbon Dioxide System and Eutrophication	16010DXV	22,770.00

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
University of California Berkeley, California	Eutrophication-Biostimulation Assessment Workshop	16010DZI	2,020.00
Oregon State University Corvallis, Oregon	Sediment-Water-Bacteria Interaction in Eutrophication	16010EBB	28,477.00
University of Toronto Toronto, Canada	The Role of Sludge Worms in Promoting Eutrophication	16010ECQ	31,170.00
University of Wisconsin Water Resources Center Hydraulic and Sanitary Laboratory Madison, Wisconsin	Eutrophication of Natural Waters	16010EHR	196,943.00
University of California Irvine, California	Effect of Phosphorus Removal Processes on Algal Growth	16010EJH	_____*
Florida Atlantic University Boca Raton, Florida	Biological Control of Aquatic Vegetation	16010EKY	30,254.00
University of Connecticut Storrs, Connecticut	Utilization of Organic Compounds by Algae	16010ELC	21,042.00
Rensselaer Polytechnic Institute Troy, New York	Metal Ion Complexing in Lake Waters	16010ELE	22,400.00
Section 5 Demonstration Grant			
Lake Tahoe Area Council South Lake Tahoe, California	Eutrophication of Surface Waters - Lake Tahoe (Indian Creek Reservoir)	16010DNY	25,001.00
University of Florida Gainesville, Florida	Eutrophication Factors in North Central Florida Lakes	16010DON	59,037.00
Lake Tahoe Area Council South Lake Tahoe, California	Eutrophication of Surface Waters - Lake Tahoe	16010DSW	74,500.00
General Beadle State College Science & Math Madison, South Dakota	A Study to Evaluate the Effect of Silt & Silt Removal in a Northern Prairy Lake	16010DZK	15,014.00
University of California La Jolla, California	Eutrophication in Coastal Waters' Nitrogen as a Controlling Factor	16010EHC	50,684.00
University of California Berkeley, California	The Removal of Algae from Natural Bodies of Water	16010EKS	40,315.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 5 Research Contract			
Syracuse University Syracuse, New York	Use of Algal Viruses to Control Eutrophication	16010DCB	37,875.00
World Life Research Institute Colton, California	Pharmacological Testing of Blue-Green Algae for Constituents having Therapeutic Value	16010DOU	6,141.00
Battelle Northwest Richland, Washington	An Investigation of the Release of Phosphorus from Lake Sediments & Suspended Solids as a Function of Phosphorus Forms &Environmental	16010DUA	122,100.00
1602 - Physical-Chemical Identification of Pollutants			
Section 5 Research Grant			
California Institute of Technology Pasadena, California	The Chemistry of Manganese in Natural Waters	16020DFZ	27,431.00
University of Wisconsin Madison, Wisconsin	Atomic Absorption Analysis of Phosphates in Water	16020DHD	17,304.00
Research Foundation of State University of New York Albany, New York	Aquatic Plant Chemistry its Application to Water Pollution Control	16020DHV	25,792.00
University of Washington Seattle, Washington	Chemical Characteristics of Organic Color in Water	16020DKW	16,623.00
Woods Hole Oceanographic Institution Woods Hole, Massachusetts	A Membrane Salinometer for Monitoring Estuaries	16020DXT	10,764.00
University of Georgia Dept. of Entomology Athens, Georgia	Fluorescent Probes in the Development of New Analytical Methods for Water Pollution	16020EAD	27,988.00
Kenyon College Gambier, Ohio	A Study of Selected Specific Ion Electrodes	16020EIN	4,672.00
University of Michigan Ann Arbor, Michigan	Detection, Identification, and Determination of Oils, Tars, and Slimes by Reflectance Spectroscopy	16020ELH	34,940.00
Section 5 Demonstration Grant			
Iowa State University Ames, Iowa	Demonstrating the Electrolysis BOD Measuring Method	16020DUN	45,840.00

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 5 Research Contract			
Rocketdyne Canoga Park, California	Development of Molecular Hydrogen Cyanide Detector	16020DRG	9,999.00
Rocketdyne Division Canoga Park, California	Prographic Characterization of Municipal Waste	16020EEW	10,520.00
Aerojet-General Corporation El Monte, California	Total Organic Carbon Instrumentation Program, Phase III	16020ERD	_____*
1603 - Biological Identification of Pollutants			
Section 5 Research Grant			
Texas Research Foundation Renner. Texas	Aquatic Plants of Polluted Waters in Southwestern United States	16030DNL	35,614.00
Israel Institute of Technology Technion City, Haifa Israel	Coliphages as Virus-Indicators in Water & Wastewater	16030DQN	28,040.00
University of Detroit Detroit. Michigan	Indicator-Pathogen Density Relationships in Tributary Streams	16030DTY	38,766.00
University of Massachusetts Amherst. Massachusetts	F.A. Methods for Determination of Fecal Streptococci Source	16030DVB	29.515.00
San Diego, City of Dept. of Public Health San Diego, California	Quantitative Virology Studies of Sewage	16030DWW	35,187.00
Syracuse University Syracuse. New York	Recovery of Water-Transmitted Viruses from Filter Surfaces	16030ECJ	21,184.00
Harvard University Cambridge, Massachusetts	Lysis of Escherichia Coli by Marine Microorganisms	16030EEI	20,021.00
University of Minnesota St. Paul, Minnesota	A tissue Enzume Assay for Chlorinated Hydrocarbon Insecticides	16030ELZ	34,400.00
Section 5 Demonstration Grant			
North Texas State Univ. Denton, Texas	Rapid Identification of Micorbial Populatins in Water	16030DPY	16,100.00
Massachusetts Health Research Institute Boston, Massachusetts	Massachusetts Pesticide Monitoring Study	16030EJW	10,007.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 5 Research Contract			
Cordis Corporation Miami, Florida	A Sensitive Continuous Water Monitoring System	16030ENR	_____*
1604 - Source of Pollutants			
Section 5 Research Grant			
University of Oklahoma Norman. Oklahoma	Evaluation of Dispersed Pollutional Load	16040DBX	8,212.00
Section 5 Research Contract			
Aerojet-General Corp. Environmental Systems Div. El Monte. California	Investigation of Means for Controlled Self-Destruction of Pesticides	16040ELO	96,520.00
1605 - Fate of Pollution in Surface Water			
Section 5 Research Grant			
Washington State University Pullman, Washington	Occurrence of Pesticides in Aquatic Environments	16050DBS	3,672.00
New Mexico State University Las Cruces, New Mexico	Effects of Channel Geometry on Stream Reaeration	16050DCS	28,511.00
Manhattan College Bronx, New York	Dynamic Water Quality Forecasting and Management	16050DDK	34,871.00
University of Waterloo Waterloo, Ontario Canada	Big Eddies and Mixing Processes in the Great Lakes	16050DIL	39,000.00
Buffalo, State University Buffalo, New York	Dynamic Model Study of Lake Erie	16050DJK	41,939.00
University of Iowa Iowa City, Iowa	Dispersion of Water Pollutants in Curvilinear Flows	16050DOP	39,041.00
University of Illinois Urbana, Illinois	Oxygen Relationships in Small Streams	16050DTJ	24,621.00
University of Michigan Ann Arbor, Michigan	The Role of Silica in Water Quality Control	16050DUW	48,221.00
Clemson University Clemson, South Carolina	Simulation of Respiration in Microbial Slime Films	16050DXB	8,249.00
Georgia Institute of Technology Atlanta, Georgia	Characterization of Stream Reaeration Capacity	16050EDT	73,642.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
University of California Davis, California	A Quick Biochemical Oxygen Demand Test	16050EMF	12,195.00
Section 5 Demonstration Grant			
Vanderbilt University Nashville, Tennessee	Turbulent Diffusion and Reaeration in Natural Rivers	16050EIO	_____*
Section 5 Research Contract			
Grumman Aircraft Engineering Corporation Bethpage, Long Island New York	Immobilized Enzyme Systems for Enhancement of Biological Waste Treatment Processes	16050DXN	36,000.00
Electro-Nucleonics, Inc. Fairfield, New Jersey	Zonal Ultracentrifuge System	16050EFY	56,641.50
1606 - Fate of Pollutants in Ground Waters			
Section 5 Research Grant			
Washington State University Pulluman, Washington	Clay Mineral Stability & Water Composition	16060DGK	15,641.00
California Institute of Technology Pasadena, California	Mycological Phenomena in Sewage Spreading Basins	16060DGU	23,211.00
Stanford University Stanford, California	Radial Flow of Soil Moisture	16060DIN	7,587.00
Purdue University Lafayette, Indiana	Dispersion During Flow in Heterogeneous Porous Media	16060DLL	14,568.00
Boyce Thompson Institute for Plant Research, Inc. Yonkers, New York	Interaction of Herbicides & Soil Microorganisms	16060DMP	52,429.00
University of California Dept. of Soils & Plant Nutrition Riverside, California	Forty Year Fertilizer Effects on NO_3 in Groundwater	16060DOE	26,113.00
Utah State University College of Engineering Logan, Utah	Bacterial Adsorption on Soils	16060EBD	34,460.00
Massachusetts Institute of Technology Cambridge, Massachusetts	Movement and Mixing of Water Injected into Aquifers	16060EIS	860.00
Massachusetts Institute of Technology Cambridge, Massachusetts	Effects of Density Stratification on Aquifer Mixing	16060ELJ	26,682.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 5 Demonstration Grant			
Texas Technological College Lubbock, Texas	Potential Pollution of the Ogalla by Recharging Playa Lake Water	16060DCO	32,936.00
Eastern Municipal Water District Hemet, California	Reutilization of Wastewater Recycled through Groundwater	16060DDZ	26,600.00
Salt River Project Salt River Valley Water Users Association Phoenix, Arizona	Spreading Treated Sewage for Groundwater Recharge	16060DRV	12,300.00
Section 5 Research Contract			
General Electric Company Pleasanton, California	Development of a New Technique for Bulk Water Tracing	16060EVC	_____*
1607 - Fate of Pollutants in Coastal Waters			
Section 5 Research Grant			
Adelphi University Department of Biology Garden City, New York	Water Movement in a Lagoonal Estuary Measured by Modified Geomagnetic Electrokinetographs	16070DBN	9,961.00
Purdue University Lafayette, Indiana	Turbulent Diffusion in Liquid Jets	16070DEP	23,124.00
Oregon State University Corvallis, Oregon	Tidal Flats in Estuarine Water Quality Analysis	16070DGO	41,302.00
Massachusetts Institute of Technology Cambridge, Massachusetts	Numerical Solution of Unsteady Dispersion in Esturates	16070DGW	9,316.00
California Institute of Technology Pasadena, California	Dispersion in Hydrologic and Coastal Environments	16070DGY	69,129.00
University of Washington Seattle, Washington	Oxidation of Organic Matter in the Seabed	16070EKZ	44,924.00
Oregon State University Corvallis, Oregon	Air Photo Analysis of Ocean Outfall Dispersion	16070ENS	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 5 Demonstration Grant			
Florida Ocean Sciences Institute, Inc. Deerfield Beach. Florida	Demonstration of the Limitation and Effects of Waste Disposal on an Ocean Shelf	16070EFG	147,850.00
Franklin Institute Research Laboratories Philadelphia, Pennsylvania	An Industrial Wasteline System	16070EOI	128,527.00
Oregon State University Corvallis, Oregon	Ocean Disposal of Wastes on the Northwest Coast	16070EOK	63,553.00
Section 5 Research Contract			
Seattle University Seattle, Washington	Oxygen Uptake by Benthic Organisms in the Presence of Varying Degress of Botton Sludge Agitation & Various Temperatures & Salinities	16070DCD	15,471.00
National Academy of Sciences Washington, D.C.	A Study of the Management of Wastes in the Coastal Environment	16070DUF	37,325.00
Tractor, Inc. Austin, Texas	State of the Art Report on Simulation of Pollution Problems and Controls in Estuaries	16070DZV	34,473.00
Oregon State University Corvallis, Oregon	Mathematical & Computer Services for the Analysis of Data & Design of Experiments of Certain FWPCA Programs	16070FDT	_____*
1608 - Water Quality Control			
Section 5 Research Grant			
Newark College of Engineering Newark, New Jersey	Effects of Fluid Properties on Stream Aeration	16080DAP	8,818.00
University of Nevada, Center for Water Resources Research Desert Research Institute Reno, Nevada	Water Quality Regimen of Tahoe-Truckee System	16080DPC	10,400.00
Oregon State University Corvallis, Oregon	Stratified Reservoir Currents	16080DRX	36,625.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 5 Demonstration Grant			
Heidelberg College Tiffin, Ohio	Effects of Augmented Stream Flow on Water Quality	16080DFO	39,691.00
Rutgers State University New Brunswick, New Jersey	Oxygen Regeneration of Polluted Rivers	16080DUP	97,263.00
Section 5 Research Contract			
Littleton Research Corp. Littleton, Massachusetts	Engineering-Economic Study for the Development of an Optimum Mechanical Aeration System for Quiet Rivers & Ponds	16080D00	29,668.00
Illinois Institute of Technology Chicago, Illinois	Development of Phosphate Free Home Laundry Detergents	16080DVF	99,896.00
1609 - Water Resources Data			
Section 5 Research Grant			
Syracuse University Syracuse New York	Allocation of Stream Pollution Carrying Capacity	16090DAJ	52,946.00
Sacramento State College Foundation Sacramento California	Complementary-Competitive Aspects of Water Storage	16090DEA	18,787.00
University of California Regents Richmond, California	Economic Evaluation of Water Quality	16090DLU	25,290.00
Water Pollution Control Federation Washington, D.C.	Research Supplement-Journal Water Pollution Control Federation	16090DQZ	41,824.00
University of Florida Gainesville Florida	A Model for Quantifying Flow Augmentation Benefits	16090DRM	39,215.00
Harvard University Cambridge Massachusetts	Dynamic Planning Techniques for Pollution Abatement	16090DSS	81,350.00
Harvard University Cambridge, Massachusetts	The Economics of Water Supply & Quality	16090DTF	27,681.00
Regional Science Research Institute Philadelphia, Pennsylvania	Economic Evaluation of Stream Quality Preservation Through Land Use Management	16090DYX	37,142.00
University of California Western Management Science Institute Los Angeles California	Multiple Techniques in Regional Treatment of Water Pollution Systems	16090EGQ	39,609.00

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
President and Fellows of Harvard College Cambridge, Massachusetts	Operations Research in Water Quality Management	16090EOZ	13,290.00
Virginia Polytechnic Institute Water Resources Research Center Blacksburg, Virginia	Water Rights Related to Water Quality Storage	16090FPW	_____*
University of California The Regents of Los Angeles California	A Mathematical Model for Regional Treatment of Water Pollution Systems	16090FPX	_____*
Oregon State University Corvallis, Oregon	Economic Benefits from an Improvement in Water Quality	16090FPZ	_____*
Section 5 Demonstration Grant			
Delaware River Basin Commission Trenton, New Jersey	Delaware Estuary & Bay Water Quality Sampling & Mathematical Model Project	16090DCI	42,583.00
Ohio River Valley Water Sanitation Commission - Orsanco Cincinnati, Ohio	Automated Forecast Procedures for River Quality Management	16090DHX	150,950.00
Pennsylvania, Commonwealth of Dept. of Health Harrisburg, Pennsylvania	Pennsylvania Water Quality Management Information System	16090DRA	252,601.00
Utah State University Logan Utah	Electronic Analog Simulation of the Salinity Flow System with the Upper Colorado River Basin	16090DVU	26,997.00
Utah State University Logan Utah	Sequential Water Use with a Hydrologic Complex	16090DWR	_____*
Delaware River Basin Commission Trenton, New Jersey	Interstate Regional Planning for Water Supply and Waste Disposal	16090FPP	_____*
Section 5 Research Contract			
Cyrus WM.Rice & Company Pittsburgh, Pennsylvania	Case Studies in Three Major River Basins to Evaluate H2O Quality Surveillance Prog. of FWPCA in Relation to the H2O Qual, Act of 1965	16090DBJ	85,000.00
Quirk, Lawler Matusky Engineers New York, New York	Request for Proposals Design of Waste Treatment Facilities by Computer	16090DIA	385,000.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Technicomp, Inc. West Hempstead, New York	Design of Waste Treatment Facilities by Computer	16090ERJ	280,363.00
Section 6B Industrial Waste Treatment Grant			
Texas A&M Research Foundation College Station, Texas	Management of Industrial Waste Discharges in Complex Estuarine Systems II	16090DQW	310,613.00
1613 - Thermal Pollution			
Section 5 Research Grant			
Oregon State University Corvallis, Oregon	Thermal Plume Dispersion	16130DGM	27,799.00
Cornell University Ithaca, New York	Heat and Water Vapor Exchange Between Water Surface and Atmosphere	16130DIP	41,514.00
Massachusetts Institute of Technology Cambridge, Massachusetts	Thermal Stratification and Reservoir Water Quality	16130DJH	27,179.00
Massachusetts Institute of Technology Cambridge, Massachusetts	Prediction and Control of Thermal Pollution	16130DJU	20,230.00
Vanderbilt University School of Engineering Nashville, Tennessee	Status of Thermal Pollution and Research Needs	16130ENT	2,500.00
Section 5 Research Contract			
Lettleton Research & Engineering Corp.	Economic-Engineering Study of Cooling Ponds	16130DFX	24,154.00
Dynatech Corporation Cambridge, Massachusetts	Survey and Economic Analysis of Alternate Methods for Cooling Condenser Discharge Water in Thermal Power Plants	16130DHS	115,143.00
Bollay E. Associates, Inc. Bowler, Colorado	Theoretical Evaluation & Dev. of a Criteria to Determine in advertent Weather Modification in the Vicinity of Cooling Towers	16130DNH	13,039.00
Cornell Areonautical Laboratory, Inc. Buffalo, New York	Thermal Pollution Research	16130DPU	24,959.00
Tetra Tech, Inc. Pasadena, California	Studies on the Effects of Waste Heat Discharge from Nuclear Power Plants into Large Bodies of Receiving Waters	16130DWO	50,576.00

1700 - WASTE TREATMENT & ULTIMATE DISPOSAL TECHNOLOGY

1701 - Dissolved Nutrient Removal

Section 5 Research Grant

Northeastern University College of Liberal Arts Boston, Massachusetts	Colloid Flotation and Adsorbing Colloid Flotation	17010DBL	41,684.00
University of Arizona Tucson, Arizona	Mechanics of Biological Luxury Phosphate Uptake	17010DDQ	35,938.00
University of Texas Austin, Texas	Enzymatic Technique for Detection of Surplus Phosphorus Uptake by Activated Sludge	17010DUX	16,607.00
University of California Berkeley, California	Kinetics of Algal Systems in Waste Treatment	17010DZQ	42,860.00
Rutgers, the State University New Brunswick, New Jersey	Removal of BOD and Nutrients by Biological Slimes	17010EBM	59,509.00
North Carolina State University Raleigh, North Carolina	Water Treatment by Membrane Ultrafiltration	17010EDR	30,176.00
University of Minnesota Minneapolis, Minnesota	Nitrification and Denitrification of Waste Water	17010FMX	_____*

Section 5 Demonstration Grant

Trenton, City of Trenton, Michigan	Phosphate Removal by Biological Process	17010DMR	19,000.00
University of Notre Dame Notre Dame, Indiana	Removal of Organic & Eutrophying Pollutants by Combined Chemical & Biological Treatment	17010DTG	43,915.00
Sewerage Commission of the City of Milwaukee Milwaukee, Wisconsin	Sewage Phosphorus Removal by an Activated Sludge Plant	17010DXD	68,076.00
University of Texas Medical Branch Galveston, Texas	Phosphorus Removal and Disposal from Municipal Wastewater	17010DYB	48,937.00
The Soap and Detergent Association New York, New York	Soluble Phosphate Removal in the Activated Sludge Process	17010EIP	48,494.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 5 Research Contract			
W.R. Grace & Company Clarksville, Maryland	Chemically Exfoliated Vermiculities for Removal of Phosphate from Waste Waters	17010DHK	48,076.00
Gulf South Research Institute Baton Rouge, Louisiana	Sewage Denitrification Requirements Using Methyl Alcohol	17010DHT	57,704.00
Aerojet-General Corporation El Monte, California	Laboratory Evaluation of a New Phosphate Removal Process	17010DJA	82,803.00
Aerojet-General Corporation El Monte, California	Parametric Studies' Nitrification-Dentrification	17010DRD	79,118.00
Lawrence K. Cecil, P.E. Tucson, Arizona	Biological Removal of Phosphates from Wastewaters by Luxury Uptake in Activated Sludge Treatment Plants	17010DRF	13,500.00
General Mills. Inc Minneapolis, Minnesota	A Phoposed Study on the Feasibility of Liquid Ion Exchange for Extracting Phosphates from Secondary Effluents	17010EAP	50,000.00
Ionics, Incorporated Watertown, Massachusetts	Electro-Oxidation of Ammonia in Sewage to Nitrogen	17010EED	60,294.00
Rocketdyne Division, N.A.R.C. Canoga Park. California	Development of a Chemical Denitrification Process	17010EFX	42,170.00
South Tahoe Public Utility District South Lake Tahoe, California	Nitrogen Removal' Supplementing Ammonia Stripping with Further Nitrogen Removal by Selective Ion Exchange and Breakpoint Chlorination	17010EGZ	12,500.00
Engineering Science. Inc. Arcadia, California	Studies on Removal of Carbonaceous, Nitrogenous, and Phosphorus Materials from Concentrated Process Waste Streams	17010EVB	——— *
Battelle Memorial Institute Pacific Northwest Laboratories Richland, Washington	Evaluation of Operating Parameters of Alumina Columns for the Select Removal of Phosphorus from Wastewaters and Ultimate Disposal of Phosp.	17010FJT	——— *
FMC Corporation Central Engrg. Labs Santa Clara, California	Process to Remove Carbonaceous Nitrogenous and Phosphorous Materials from Anaerobic Digester Supernatant and Related Process Streams	17010FKA	——— *

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Tyco Laboratories Waltham, Massachusetts	Basic Salinogen Ion Exchange Resins for Selective Nitrate Removal from Potable and Effluent Waters	17010FKF	_____*
Section 6A2 Advanced Waste Treatment Grant			
Traverse City Traverse City, Michigan	Controlled Removal of Phosphates Using Chemical & Biological Techniques in Secondary Treatment	17010DIX	75,863.00
Riverview, City of Riverview, Michigan	Use of Ferros Chl.-Cal. Carbonate-Org. Polyelectrolyte Chem. Precip. Process Removal of Phosph. from Mun. Waste H2O, Improvement of Overall	17010DSN	494,154.00
Municipality of Metropolitan Seattle Seattle, Washington	Phosphate Removal in an Activated Sludge Facility	17010EDA	188,567.00
South Lake Tahoe Public Utility District South Lake Tahoe, California	Recovery and Reuse of Lime as a Cogulant in Tertiary Treatment and Nitrogen Removal from Teritiary Treated Effluent	17010EIQ	_____*
Detroit, City of Detroit, Michigan	Pilot Scale Study of Improved Phosphate Removal by Modified Activated Sludge Process	17010FAH	_____*
Section 6A2 Advanced Waste Treatment Contract			
Baltimore, City of Dept. of Public Works Baltimore, Maryland	Phosphate Study at the Back Wastewater Treatment Plant	17010DFV	212,278.00
Prince William County Manassas, Virginia	Prince William County, Virginia Pilot Plant	17010DYM	395,744.00
Pacific Northwest Laboratory Battelle Memorial Institute Richland, Washington	Demonstration of Amoble Pilot Plant for Ammonia Removal from Waste Water by Selective Ion Exchange	17010ECZ	184,600.00
Battelle Northwest Richland Washington	Research to Develop and Demonstrate a Mobile Pilot Plant for Removal of Soluble Phosphorus from Waste Waters by Adsorption on Alumina	17010EER	169,314.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
1702 - Dissolved Refractory Organice Removal			
Section 5 Research Grant			
University of Colorado Boulder, Colorado	The effect of Porous Structure on Carbon Actination	17020DDC	21,187.00
University of California Davis, California	Purifying Water in Photo-chemical Reactors	17020DDV	23,382.00
Clarkson College of Technology Potdam, New York	Photodegration of Polymers in Aqueous Solution	17020DFG	11,947.00
Clarkson College of Technology Potsdam, New York	Radioisotope Tracer Study of Membrane Purification	17020DJT	14,855.00
Syracuse University Syracuse, New York	Carbon Column Operation in Waste Water Treatment	17020DZO	47,372.00
Section 5 Research Contract			
MSA Research Corporation Evans City, Pennsylvania	Laboratory Investigation on the Regeneration of Spent Granular Activated Carbon	17020DAO	55,811.00
Amicon Corporation Lexington, Massachusetts	Ultrafiltrate Dewatering of Spent Carbon from the Powered Carbon Process	17020DBA	39,500.00
West Virginia Pulp and Paper Company Covington, West Virginia	Study of Powdered Carbons for Waste Water Treatment and Methods for Their Application	17020DNQ	5,395.00
Midwest Research Institute Kansas City, Missouri	Advanced Study of Light-Catalyzed Chlorine Oxidation for Large-Scale Treatment of Wastewater	17020DUE	87,935.00
Swindell-Dressler Company Pittsburgh, Pennsylvania	Appraisal of Contracting Systems for Granular Activated Carbon Adsorption Treatment of Wastewater	17020DVJ	16,082.00
Arde, Inc. Paramus, New Jersey	Applicability of Ardox Catalysts to the Oxidation of Municipal sewage Effluents and of Wastes Produced During Manned Space Flight	17020DVK	8,000.00
Southern Illinois University Office of Research and Projects Carbondale, Illinois	Feasibility Studies of Applications of Super-catalysis in Wastewaters	17020ECI	35,560.00

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Battelle Memorial Institute Columbus, Ohio	Development of a Fluidized-Bed Technique for the Regeneration of Powdered Activated Carbon	17020FBD	_____*
Infilco Fuller Company Tucson, Arizona	Advanced Wastewater Treatment Using Powdered Activated Carbon in Recirculating Slurry Contactor-Clarifiers	17020FKB	_____*
Section 6A2 Advanced Waste Treatment Grant			
East Chicago Sanitary District East Chicago, Indiana	Tertiary Treatment of Combined Storm Water, Sanitary Relief Discharges and Sewage Treatment Plant Effluent	17020EHI	_____*
Section 6A2 Advanced Waste Treatment Contract			
Aerojet General Corporation El Monte, California	New Membranes and Process Technology for the Renovation of Wastewater by Reverse Osmosis	17020DUD	116,058.00
Airco-Air Reduction Company Murray Hill, New Jersey	Construction & Operation of a Pilot Plant for the Treatment of Secondary Effluent from Waste Treatment Plants with Ozone	17020DVC	636,820.00
North Star Research & Development Institute Minneapolis, Minnesota	New and Ultrathin Membranes for Municipal Waste Water Treatment by Reverse Osmosis	17020EFA	70,165.00
1703 - Suspended and Colloidal Solids			
Section 5 Research Grant			
University of Minnesota Minneapolis, Minnesota	Removal of Colloidal Matter from Waste Water	17030DGQ	24,215.00
University of Cincinnati Cincinnati, Ohio	Foam Fractionation with Reflux	17030DHH	7,894.00
University College London London, W.C.L., England	Multilayer Filtration	17030DLD	6,440.00
University of California Berkeley, California	Orthokinetic Flocculation of Heterodispersed Systems	17030DLX	36,897.00
University of Kentucky Lexington, Kentucky	Foam Separation Flotation of Colloid Organic Systems	17030DNA	35,174.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Clarkson College of Technology Potsdam, New York	Flocculation of Colloids Suspended in Water	17030DOV	24,670.00
Harvard University Cambridge, Massachusetts	Chemical Aspects of Coagulation	17030EBE	1,302.00
Lehigh University Bethlehem. Pennsylvania	Waste Water Purification	17030ECM	60,015.00
Iowa State University Ames. Iowa	Design Requirements for Municipal Diatomite Filters	17030FBG	_____*
Section 5 Research Contract			
Oak Ridge National Laboratory Oak Ridge. Tennessee	Application of Hyperfiltration with Dynamically-Formed Membranes to Treatment of Municipal Sewage Effluents	17030EOH	28,000.00
Standard Brands Chemical Industries, Inc. Dover, Delaware	Investigation of Amphipathic Water Soluble Polymers as Flocculants and Flotation Aids in Domestic Waste Water Treatment	17030FKD	_____*
Section 6A2 Advanced Waste Treatment			
Greene County Greene County, Ohio	Improved Liquid-Solids Separation by use of an Aluminum Compound in Activated Sludge Treatment	17030EBH	48,548.00
San Jose, City of San Jose, California	BOD, Solids and Nutrient Removal from Secondary Effluent by Foam Fractionation	17030EZS	_____*
Section 6A2 Advanced Waste Treatment Contract			
Eimco Corporation Salt Lake.City, Utah	Physical-Chemical Treatment	17030EFB	431,009.00
1704 - Dissolved Inorganics Removal			
Section 5 Research Contract			
Douglas Aircraft Company Newport Beach. California	Use of Improved Membranes in Tertiary Treatment by Reverse Osmosis	17040DHR	82,660.00
Amicon Corporation Lexington, Massachusetts	Evaluation & Characterization of Low Pressure Membrane Ultrafiltration as a Technique for Removal & Identification of Macro-Solutes & Microsol	17040DMK	77,200.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Gulf General Atomic Inc. San Diego California	Membrane Materials for Waste Water Reclamation by Reverse Osmosis	17040EFO	79,982.00
Aerojet-General Corporation El Monte California	Renovation of Municipal Waste Water by Reverse Osmosis Systems Laboratory Program Extension	17040EFQ	50,360.00
Santee County Water District Santee. California	Reclamation of Biologically, Mechanically. and Chemically Treated Waste Water for Potable Water Supply Uses, Etc.	17040FKG	_____*
Section 6A2 Advanced Waste Treatment Grant			
Eastern Municipal Water District Helment California	Reverse Osmosis in Ground Water Recharge Program	17040DSR	55,795.00
Section 6A2 Advanced Waste Treatment Contract			
University of Florida Gainesville Florida	Evaporation of Sewage Plant Effluent	17040DNM	54,865.00
1705 - Dissolved Biodegradable Organics			
Section 5 Research Grant			
The Ohio State University Columbus, Ohio	Concentration of Chemicals by Floc Forming Organisms	17050DFJ	24,912.00
Cornell University Ithaca. New York	Adaptation by Microbial Population	17050DFL	24,225.00
Oklahoma State University Stillwater, Oklahoma	Kinetics & Mechanism in Activated Sludge Processes	17050DFM	29,622.00
Randolph-Macon Woman's College Lynchburg, Virginia	Isolation of Lytic Agents Related to Sphaerotilis	17050DHI	11,659.00
University of Kansas Lawrence. Kansas	Oxygen Combustion in Continuous Biological Culture	17050DJS	18,321.00
University of California Berkeley. California	UCB-ENG-2861--Transient Loading Effects in the Activated Sludge Process	17050DOE	39,720.00
State of Minnesota Dept. of Iron Range Resources and Rehabilitation	Treatment of Wastes Using Peat. and Peat in Combination with Soil	17050EAN	41,491.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
University of Massachusetts Amherst Massachusetts	Reverse Osmosis Treatment of Wastewaters	17050EHG	30,160.00
Section 5 Demonstration Grant			
Kansas State University Dept. of Civil Engineering Manhattan Kansas	Pilot Plant Demonstration of a Lime-Biological Treatment Phosphorous	17050DCC	25,950.00
University of Wyoming Laramie Wyoming	Supplementary Aeration of Lagoons in Rigorous Climate Areas	17050DVD	32,499.00
Section 5 Research Contract			
FMC Corporation Chem. Res. & Develop. Center Princeton, New Jersey	A Study and Investigation of Granular Carbon Treatment of Raw Sewage	17050DAL	89,500.00
Allis-Chalmers Res Division Milwaukee Wisconsin	Improved Methods of Conditioning the Discharge Waters from Sewers carrying both Storm Water & Sanitary Wastes	17050DAM	51,826.00
Roy F. Weston West Chester. Pennsylvania	Improved Engineering Application of the Two-Film Theory to Oxygen Transfer	17050DCU	41,555.00
Dow Chemical Company Midland. Michigan	Literature Search & Critical Analysis of Biological Trickling Filter Studies	17050DDY	19,039.00
Rocketdyne Division Canoga Park. California	U-Tube Aeration	17050DVT	14,935.00
Midwest Research Institute Kansas.City. Missouri	Oxygenation of Aqueous Bodies Using Liquid Oxygen-Loxination	17050EEY	16,760.00
Infilco Products Tucson, Arizona	Powdered Carbon Treatment of Raw Sewage and Primary Effluent in Slurry Contractor Clarifiers	17050EGI	126,355.00
Midwest Research Institute Kansas City, Missouri	Optimizing Lipid Biostabilization Processes	17050FIM	_____*
Section 6A2 Advanced Waste Treatment Grant			
City of Chino Chino, California	Reclamation of Waste Water by Controlled Biological Kenetics	17050DZE	124,204.00
New York State Department of Health Albany, New York	High-Performance Bio-Treatment of Municipal Sewage	17050EDL	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
San Buenaventura, City of San Buenaventura, California	Integrated Activated Sludge-Biological Filter Process	17050EEO	_____*
Dept. of Sanitary Engineering Washington, D.C.	Primary and Secondary Treatment Pilot Plant	17050EJB	_____*
D.C. Government of Sanitary Engineering Washington D.C.	Use of Modified Activated Sludge Treatment to Achieve Nutrient Removal and to Provide Consistent Feed to Tertiary Treatment System	17050FAI	_____*
Section 6A2 Advanced Waste Treatment			
Union Carbide Corp. Tonawanda, New York	Investigation of the Use of High Purity Oxygen aeration in the Conventional Activated Sludge Process	17050DNW	528,000.00
Roy F. Weston, Inc. West Chester, Pensylvania	Biological Treatment Pilot Plant & Sludge Disposal Facility	17050FPA	_____*
1706 - Microorganisms Removal			
Section 5 Research Grant			
University of Illinois Urbana, Illinois	Disinfection of Sewage Effluents	17060DNU	21,427.00
University of Maine Orono, Maine	Effects of Chemical Ions on Virus Inactivation	17060DTO	41,787.00
Section 5 Demonstration Grant			
Hebrew University Hadassah Medical School Jerusalem, Israel	The Detection and Inactivation of Enteric Viruses in Waste Water	17060EAM	128,254.00
Section 5 Research Contract			
University of Cincinnati Cincinnati, Ohio	Chlorine Inactivation of Viruses in Wastewater	17060DDU	138,286.00
Section 6A2 Advanced Waste Treatment Grant			
St. Michaels, Community of St. Michaels, Maryland	Controlled Treatment System	17060FAA	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
1707 - Ultimate Disposal			
Section 5 Research Grant			
Manhattan College Bronx, New York	The Biochemistry of Anaerobic Digestion	17070DEK	8,188.00
Southwest Missouri State College Springfield. Missouri	Microbiology of Sludge: DNA Analyses	17070DHO	15,364.00
Vanderbilt University Nashville. Tennessee	Dewatering & Drying of Sewage Sludge on Porous Media.	17070DIV	12,721.00
University of Illinois Urbana, Illinois	Mechanisms of Sludge Thickening	17070DJR	34,297.00
University of Florida Gainesville, Florida	Studies on the Methanogenic Bacteria in Sludge	17070DJV	28,662.00
University of Connecticut Storrs Agricultural Experiment Station Storrs. Connecticut	Treatment Processes - Wastes Pumped from Septic Tanks	17070DKA	80,577.00
Syracuse University Syracuse. New York	Pipeline Flow of Solids-Liquid Suspensions	17070DUQ	19,205.00
Georgia Institute of Technology Engineering Experiment Station Atlanta, Georgia	Digestion of Sludges with Sodium Chloride and Sulfate	17070DYF	21,967.00
Section 5 Research Contract			
Western Company Richardson, Texas	Response to RFP WA 68-141 Treatment of Oil Wastes	17070DJW	9,500.00
Resource Engineering Assoc. Inc. Stanford Connecticut	Sludge Incineration Practice	17070DLV	6,576.00
Burns & Roe Oradell New Jersey	Ultimate Disposal of Liquid Wastes	17070DLY	73,439.00
Midwest Research Institute Kansas City, Missouri	Development of Techniques for Estimating the Bacterial Population of Sewage Sludge	17070DRP	116,600.00
Monsanto Research Corp. Dayton, Ohio	Study of Utilization and Disposal of Lime Sludges Containing Phosphates	17070FHE	_____*

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 6A2 Advanced waste Treatment Grant			
City of Hamilton Hamilton, Ohio	Conversion of Existing Anaerobic Digesters to Heated Aerobic Digesters Full Scale	17070DIW	241,804.00
City of River Falls River Falls, Wisconsin	Demonstration of the Channel Aeration Process for Stabilization of Solids	17070DIZ	141,148.00
Seattle, Municipality of Metropolitan Seattle, Washington	Park Development with Wet Digested Sludge	17070ENP	_____*
District of Columbia Department of Sanitary Engineering Washington, D.C.	Sludge Treatment Pilot Plant	17070EOG	461,052.00
Section 6A2 Advanced Waste Treatment Contract			
Rocketdyne Division North American Rockwell Corporation Canoga Park, California	Multiple Hearth Furance Sewage Sludge Incineration	17070EBP	62,200.00
Rand Development Corporation Cleveland, Ohio	Field Demonstration of Pipeline Transportation and Land Disposal of Sludge Slurries	17070EFE	126,260.00
Rocketdyne Division North American Rockwell Corp Canoga Park, California	Investigation of Electro-Osmosis as a Technique for Sewage Sludge De-Watering	17070EHE	79,966.00
1708 - Waste Water Renovation and Re-use			
Section 5 Research Grant			
University of Colorado Boulder, Colorado	Evaluation of Treatment for Urban Wastewater Reuse	17080DOI	35,715.00
Syracuse University Syracuse, New York	Mass Transfer Analysis in Reverse Osmosis Operation	17080DUU	21,983.00
Section 6A2 Advanced Waste Treatment Grant			
Lompoc, City of Lompoc, California	Municipal Sewage Effluent Reclamation by Percolation with High Ground Water Conditions	17080DGC	63,030.00
Colorado Springs Colorado Springs, Colorado	Teriary Treatment of Sewage Plant Effluent & Reuse-Power Plant Supply & Irrigation	17080DJF	595,546.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Washington Suburban Sanitary Commission Hyattsville, Maryland	Model Advanced Waste Treatment Plant	17080DZY	750,000.00
Santee County Water District Santee, California	Renovation of Waste Effluent for Recreational and Potable Water Supply Uses	17080EDV	_____*
Improvement District No. 1 Irvine Ranch Water District Irvine, California	Tertiary Sewage Treatment for Reuse	17080EDW	_____*
Dallas, City of Dallas City Water Utilities Dallas, Texas	Demonstration Project Dallas Water Reclamation Research Center	17080EXG	_____*
Colorado Springs, city of Colorado Springs, Colorado	Tertiary Treatment of Sewage Plant Effluent and Reuse Pikes Peak	17080FAB	_____*
Nassau, County of Public Works Mineola, New York	Advanced Waste Treatment for Water Reclamation and Reuse by Injection	17080FAF	_____*
Section 6A2 advanced Waste Treatment Contract			
Office of Saline Water U.S. Department of Interior Washington, D.C.	Joint OSW - FWPCA Study: The Economics of Combined Seawater Distillation	17080DPQ	38,000.00
Los Angeles County Sanitation District No. 2 Los Angeles, California	Support of the Advanced Waste Treatment Pilot Plant at Pomona, California	17080EDE	254,297.00
Los Angeles County Board of Supervisors Los Angeles, California	Waste Water Reclamation Project for Antelope Valley	17080ESH	_____*
1709 - Waste Treatment Optimization			
Section 5 Research Grant			
Fourth International Conference on Water Poilution U.S. of America National Committee Washington, D.C.	Fourth International Conference on Water Poilution Research (Travel Funds)	17090DDP	10,000.00
The Regents of the University of Michigan Ann Arbor, Michigan	Electrical Stimulation of Microbial Waste Treatment	17090DGJ	41,750.00
Texas A&M Research Foundation Civil Engineering Dept. College Station, Texas	Tertiary Treatment by Carbon Filtration	17090DHA	19,316.00

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LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Section 5 Research Contract			
Black and Veatch Consulting Engineers Kansas City, Missouri	Establish Construction, Operating and Maintenance Cost for Unit Processes of Waste	17090DAN	179,608.00
IIT Research Institute Chicago, Illinois	Mathematical Model for Waste Water Treatment by "Ion Exchange"	17090DDX	26,194.00
American Public Works Assoc. Chicago, Illinois	Computer Control of Sewage Treatment & Water Quality	17090DOY	27,236.00
Quirk Lawler & Matusky Engineers New York, New York	Sludge Dewaterings by Centrifuge-Computerization of Process Design, Equipment Selection and Cost Estimation	17090DPX	22,065.00
IIT Research Institute Chicago, Illinois	Ammonia Stripping Mathematical Model for Wastewater Treatment	17090DRN	4,962.00
O'Brien & Gere Consulting Engineers & Land Surveyors Syracuse New York	Effect of Flow Equalization on Conventional Treatment	17090EEV	153,434.00
General American Transportation Corp. Gen. Amer. Research Div. Niles, Illinois	Reclamation of Lime Sludge Using Fluidized Bed Incinerators	17090EHJ	14,604.00
Los Angeles, city of Los Angeles, California	Characterization of the Activated Sludge Process at the Hyperion Treatment Plant	17090FJU	_____*
Rex Chainbelt, Inc. Milwaukee, Wisconsin	A Mathematical Model for the Final Clarifier of an Activated Sludge Process	17090FJW	_____*
General American Trans. Corp. General Research Div. Niles, Illinois	Development of a Mathematical Model for Separation, Coagulation and Sedimentation Process Using Addition of Chemicals	17090FKC	_____*
Process Research Inc. Cambridge, Massachusetts	Mathematical Model of the Electrodialysis Process for Advanced Waste Treatment	17090FTA	_____*

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1800 - WATER QUALITY REQUIREMENTS RESEARCH

1801 - Municipal Uses

Section 5 Research Grant

University of Connecticut Storrs, Connecticut	Characterization of Taste and Odors in Water Supplies	18010DGH	22,512.00

Section 5 Research Contract

Little, Arthur D. Inc. Cambridge, Massachusetts	Chemical Pollution of Fresh Water & Health	18010DPV	81,712.00

1802 - Industrial Uses

Section 5 Research Grant

Oregon State University Corvallis, Oregon	Impairment of the Flavor of Fish by Water Pollutants	18020DDM	26,240.00

Section 5 Research Contract

Food and Drug Research Laboratories Maspeth, New York	Study to Ascertain Water Untreated - Requirements of American Industries	18020DUS	80,309.00

1804 - Recreational Uses

Section 5 Research Grant

University of Wisconsin Madison, Wisconsin	Tissue Analysis for Nutrient Assay of Natural Waters	18040DGI	28,487.00

Section 5 Research Contract

Aerojet - General Corp. El Monte, California	Investigation into Recreational Water Uses - Phase II	18040DAZ	99,700.00

1805 - Fish and Other Aquatic Life

Section 5 Research Grant

University of Minnesota Minneapolis, Minnesota	Lake Superior Periphyton in Relation to Water Quality	18050DBM	40,598.00
University of Texas Austin, Texas	Investigation of Texas Soil Algae	18050DBR	35,416.00
University of Massachusetts Amherst, Massachusetts	Pesticide Effects on Larval Marine Fishes	18050DBT	6,002.00

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
University of California Davis, California	Limnology of Lake Tahoe Emphasizing Water Quality	18050DBU	86,627.00
University of Washington Seattle, Washington	Sublethal Amounts of Organic Insecticides and Fish	18050DBV	30,721.00
Montana State University Bozeman, Montana	Limnology of Yellowtail Reservoir & the Big Horn River	18050DBW	18,223.00
University of Minnesota Department of Entomology St. Paul, Minnesota	Influence of Hydrogen Sulfide on Fish and Arthropods	18050DCG	75,036.00
New York University City College New York, New York	Structure & Function of a New Sulfolipid	18050DCW	44,977.00
University of Pacific Stockton, California	Environmental Biology of Thomales Bay	18050DFV	37,309.00
University of Georgia Dept. of Entomology Athens, Georgia	Studies on Southeastern Aquatic Insects	18050DFW	33,491.00
University of Miami Rosenstiel School of Marine & Atmospheric Sciences Miami, Florida	Effects of Thermal Pollution on Biota of Biscayne Bay	18050DFU	115,116.00
Washington State University Pullman, Washington	The Biology & Chemistry of Sphaerotilus	18050DGL	23,710.00
Eastern New Mexico Univ. Portales, New Mexico	Cytotaxonomy & Related Studies of Holartic Midges	18050DHF	1,049.00
University of Washington Fisheries Research Institute Seattle, Washington	Estuarine Ecology Research	18050DHM	83,457.00
Iowa State University Ames, Iowa	Ecology of Diatoms in Hardwater Habitats	18050DIE	6,971.00
Oregon State University Corvallis, Oregon	Relationship of Temperature to Diseases of Salmonid Fish	18050DIJ	88,375.00
University of Miami Miami, Florida	Ecology of Postlarval Fishes of Southern Biscayne Bay	18050DIU	48,867.00
Academy of Natural Sciences of Philadelphia Philadelphia, Pennsylvania	Factors Affecting the Structure of Diatom Communities	18050DIY	98,377.00
Oregon State University Corvallis, Oregon	Development of Dissolved Oxygen Criteria for Freshwater Fish	18050DJZ	44,721.00

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
University of Michigan Ann Arbor, Michigan	A Detailed Study of Lake Michigan Plankton Diatoms	18050DEC	29,604.00
University of Alaska College, Alaska	Ecology & Nitrogen Cycle in a Marine Plant Community	18050DEX	18,039.00
University of Alaska Institute of Marine Science College Alaska	Biological Effects of Heavy Metal Pollution	18050DIW	30,285.00
University of Idaho College of Forestry Moscow, Idaho	Pollution Effects on Adult Steelhead Migration	18050DMB	41,029.00
University of Miami Institute of Marine & Atmospheric Sciences Miami, Florida	The Biology of Tropical Bottom Invertebrates	18050DMV	40,980.00
California Institute of Technology Kerckhoff Marine Laboratory Corona Del Mar, California	Marine Waste Disposal and Sea Urchin Technology	18050DRV	54,913.00
Pennsylvania State University University Park, Pennsylvania	Fish and Food Organisms in Mine Acid Waters of Pennsylvania	18050DOG	34,845.00
Virginia Polytechnic Institute Blacksburg, Virginia	Stream Faunal Recovery After Strip-Mine Reclamation	18050DOH	6,879.00
Washington, State of Dept. of Fisheries Olympia, Washington	Development of an In Situ Marine Bioassay with Clams	18050DOV	29,241.00
University of Texas Austin, Texas	Bactericidal Effects of Algae on Enteric Organisms	18050DOX	6,295.00
University of Wisconsin Madison, Wisconsin	Significance of Arthrobacter in Ecology of Water & Soil	18050DPE	3,750.00
Utah State University Logan, Utah	Food Requirements of Young Mountain Whitefish	18050DPL	12,009.00
Winona State College Winona, Minnesota	Mayflies and Caddisflies as Water Quality Indicators	18050DQH	2,055.00
University of Miami Miami, Florida	Effects of Pesticides on Marine Animals	18050DRL	52,702.00
Michigan State University Dept. of Physiology East Lansing, Michigan	Toxic Action of Water Soluble Pollutants of Freshwater Fish	18050DST	15,510.00
University of Rhode Island Kingston, Rhode Island	Chemical Responses by Marine Organisms to Stress	18050DTX	35,826.00

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
Texas A&M Research Foundation College Station, Texas	Toxicity of Metals to Marine Phytoplankton Cultures	18050DUI	31,637.00
De Pauw University Greencastle, Indiana	The Effect of Inorganic Sediment on Stream Ecosystems	18050DWC	16,101.00
Central State University Wilberforce Ohio	Sublethal Influence of Pollutants on Fish Metabolism	18050DWL	10,102.00
Texas A&M University Research Foundation Institute of Life Sciences College Station, Texas	Heavy Metals and Locomotion in Fish	18050DWQ	108,908.00
Western Washington State College Bellingham, Washington	Effects of Pollutants on Submarine Plant Synecology	18050DXI	16,217.00
Pennsylvania State University University Park, Pa.	Cytopathology in Fish Exposed to Stream Pollutants	18050DXJ	30,281.00
Colorado State University Fort Collins, Colorado	Effects of Chemical Variations in Aquatic Environments	18050DYC	29,449.00
Eastern Illinois University Department of Zoology Charleston, Illinois	Biological Survey of Streams of Coles County, Illinois	18050DZZ	18,536.00
Woods Hole Oceanographic Institution Woods Hole, Massachusetts	Interaction Between Organisms and Oil Pollution	18050EBN	57,559.00
Utah Division of Fish and Game Salt Lake City, Utah	Pollution as a Result of Fish Cultural Activities	18050EDH	10,928.00
Virginia Polytechnic Institute Blacksburg. Virginia	Effects of Toxicants Upon Fish Movement Patterns	18050EDP	13,731.00
Virginia Polytechnic Institute Blacksburg. Virginia	Toxicants and the EKG and Respiration of Fish	18050EDQ	20,643.00
Eastern New Mexico Univ. Portales. New Mexico	The Chironomidae of California	18050EOA	28,372.00
Section 5 Demonstration Grant			
Texas Christian University Fort Worth, Texas	Effects of Selected Pollutants on Certain Game & Rough Fish	18050DBB	26,433.00
Hawaii Institute of Marine Biology Kaneohe, Hawaii	Thermal Loading Effects on the Hawaiian Marine Biota	18050DDN	21,265.00

LOCATION AND RECIPIENT	PROJECT TITLE	NUMBER	AMOUNT
University of Michigan Ann Arbor, Michigan	Field Studies of Pesticide Effects on Fishes	18050DLO	30,152.00
Section 5 Research Contract			
Westinghouse Electric Corp. Pittsburgh, Pennsylvania	Environmental & Ecological Survey of the Area Around the Key West Desalination Plant	18050DAI	69,067.00
Bureau of Commercial Fisheries Seattle, Washington	Effect of Thermal Discharges on Economically Important Fish in Columbia Rivers	18050DGF	151,560.00
Aquatic Sciences, Inc. Boca Raton, Florida	Synergistic Effects of Sub-Lethal Pollution on the Develop. of Selected Warm-Temperate & Sub-Tropical Fishes & Crustaceans	18050DLR	207,001.00
University of Michigan Ann Arbor, Michigan	Copper Toxicity to Fishes in Natural Waters	18050EEP	95,200.00
University of Montana Missoula, Montana	Water Quality Requirements of Aquatic Insects	18050FLS	_____*
University of Rhode Island Kingston, Rhode Island	Establishment of University of Rhode Island Phytoplankton Collection	18050FOF	_____*
University of Michigan Ann Arbor, Michigan	Effects of Water Temperature and/or Dissolved Oxygen Requirements	18050FOG	_____*

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